Phaser 3435

SERVICE MANUAL

xerox

708P89105

05/08

Phaser 3435

Service Documentation

708P89105

05/08

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Safety Precautions

In order to prevent accidents and to prevent damage to the equipment, please read the precautions listed below carefully before servicing the machine and follow them closely.

Warnings, Cautions and Notes

WARNING

A warning is used whenever an operating or maintenance procedure, practice, condition or statement, if not strictly observed, could result in personal injury.

CAUTION

A caution is used whenever an operation or maintenance procedure, practice, condition or statement, if not strictly observed, could result in damage to the equipment.

Note: *A note is used where it is essential to highlight a procedure, practice, condition or statement.*

Safety Warning

1. Only to be serviced by appropriately qualified service engineers.

   High voltages and lasers inside this product are dangerous. This machine should only be serviced by a suitably trained and qualified service engineer.
2. Use only Xerox replacement parts

   There are no user serviceable parts inside the machine. Do not make any unauthorized changes or additions to the machine, these could cause the machine to malfunction and create electric shock or fire hazards.
3. Laser Safety Statement

   The machine is certified in the U.S. to conform to the requirements of DHHS 21 CFR, chapter 1 Subchapter J for Class 1(1) laser products, and elsewhere, it is certified as a Class I laser product conforming to the requirements of IEC 825. Class I laser products are not considered to be hazardous. The laser system and machine are designed so there is never any human access to laser radiation above a Class I level during normal operation, user maintenance, or prescribed service condition.

WARNING

Follow the service procedure exactly as written. Use of controls or adjustments other than those specified in this manual, may result in an exposure to invisible laser radiation. During servicing, the invisible laser radiation can cause eye damage if looked at directly.

Materials

1. If the LCD control panel is damaged, it is possible for the liquid inside the display to leak. Contact with skin should be avoided, wash any splashes from eyes or skin immediately and contact your doctor. If the liquid gets into the mouth or is swallowed see a doctor immediately.
2. Please keep print cartridges away from children.

Electric Shock and Fire Safety Precautions

Failure to follow the following instructions could cause electric shock or potentially cause a fire.

1. Use only the correct voltage, failure to do so could damage the machine and potentially cause a fire or electric shock.
2. Use only the power cable supplied with the machine. Use of an incorrectly specified cable could cause the cable to overheat and potentially cause a fire.
3. Do not overload the power socket, this could lead to overheating of the cables inside the wall and could lead to a fire.
4. Do not allow water or other liquids to spill into the machine, this can cause electric shock. Do not allow paper clips, pins or other foreign objects to fall into the machine these could cause a short circuit leading to an electric shock or fire hazard.
5. Never touch the plugs on either end of the power cable with wet hands, this can cause electric shock. When servicing the machine, remove the power plug from the wall socket.
6. Use caution when inserting or removing the power connector. The power connector must be inserted completely otherwise a poor contact could cause overheating and possibly leading to a fire. When removing the power connector grip it firmly and pull.
7. Take care of the power cable. Do not allow it to become twisted, bent sharply round corners or otherwise damaged. Do not place objects on top of the power cable. If the power cable is damaged, it could overheat and cause a fire or exposed wires could cause an electric shock. Replace a damaged power cable immediately, do not reuse or repair the damaged cable. Some chemicals can corrode the coating on the power cable, weaken the cover or exposing wires causing fire and shock risks.
8. Ensure that the power sockets and plugs are not cracked or broken in any way. Any such defects should be repaired immediately. Take care not to cut or damage the power cable or plugs when moving the machine.
9. Avoid damp or dusty areas, install the machine in a clean well ventilated location. Do not position the machine near a humidifier. Moisture and dust build up inside the machine can lead to overheating and cause a fire.
10. Do not position the machine in direct sunlight.
11. Do not insert any metal objects into the machine through the ventilator fan or other part of the casing, it could make contact with a high voltage conductor inside the machine and cause an electric shock.

Handling Precautions

The following instructions are for your own personal safety, to avoid injury and so as not to damage the machine

1. Ensure the machine is installed on a level surface, capable of supporting its weight. Failure to do so could cause the machine to tip or fall.

2. The machine contains many rollers, gears and fans. Take great care to ensure that you do not catch your fingers, hair or clothing in any of these rotating devices.
3. Do not place any small metal objects, containers of water, chemicals or other liquids close to the machine which if spilled could get into the machine and cause damage or a shock or fire hazard.
4. Do not install the machine in areas with high dust or moisture levels, beside an open window or close to a humidifier or heater. Damage could be caused to the machine in such areas.
5. Do not place candles, burning cigarettes, etc. on the machine, these could cause a fire.
6. The fuser unit works at a high temperature. Use caution when working on the machine. Wait for the fuser to cool down before disassembly.

Assembly / Disassembly Precautions

Replace parts carefully, always use Xerox parts. Take care to note the exact location of parts and also cable routing before dismantling any part of the machine. Ensure all parts and cables are replaced correctly.

Please carry out the following procedures before dismantling the machine or replacing any parts.

1. Check the contents of the machine memory and make a note of any user settings. These will be erased if the mainboard is replaced.
2. Ensure that power is disconnected before servicing or replacing any electrical parts.
3. Disconnect printer interface cables and power cables.
4. Be sure to remove the print cartridge before you disassemble any parts.
5. Only use approved spare parts. Ensure that part number, product name, any voltage, current or temperature rating are correct.
6. When removing or re-fitting any parts do not use excessive force, especially when fitting screws into plastic.
7. Take care not to drop any small parts into the machine.
8. Handling of the OPC Drum

   - The OPC Drum can be irreparably damaged if it exposed to light.

   Take care not to expose the OPC Drum either to direct sunlight or to fluorescent or incandescent room lighting. Exposure for as little as 5 minutes can damage the surface's photoconductive properties and will result in print quality degradation. Take extra care when servicing the machine. Remove the OPC Drum and store it in a black bag or other lightproof container. Take care when working with the covers (especially the top cover) open as light is admitted to the OPC area and can damage the OPC Drum.

   - Take care not to scratch the green surface of OPC Drum Unit.

   If the green surface of the Drum Cartridge is scratched or touched the print quality will be compromised.

ESD Precautions

Certain semiconductor devices can be easily damaged by static electricity. Such components are commonly called “Electrostatically Sensitive (ES) Devices”, or ESDs. Examples of typical ESDs are: integrated circuits, some field effect transistors, and semiconductor “chip” components.

The techniques outlined below should be followed to help reduce the incidence of component damage caused by static electricity.

CAUTION

Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

1. Immediately before handling a semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, employ a commercially available wrist strap device, which should be removed for your personal safety reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ESDs, place the assembly on a conductive surface, such as aluminium or copper foil, or conductive foam, to prevent electrostatic charge buildup in the vicinity of the assembly.
3. Use only a grounded tip soldering iron to solder or desolder ESDs.
4. Use only an “anti-static” solder removal device. Some solder removal devices not classified as “anti-static” can generate electrical charges sufficient to damage ESDs.
5. Do not use Freon-propelled chemicals. When sprayed, these can generate electrical charges sufficient to damage ESDs.
6. Do not remove a replacement ESD from its protective packaging until immediately before installing it. Most replacement ESDs are packaged with all leads shorted together by conductive foam, aluminium foil, or a comparable conductive material.
7. Immediately before removing the protective shorting material from the leads of a replacement ESD, touch the protective material to the chassis or circuit assembly into which the device will be installed.
8. Maintain continuous electrical contact between the ESD and the assembly into which it will be installed, until completely plugged or soldered into the circuit.
9. Minimize bodily motions when handling unpackaged replacement ESDs. Normal motions, such as the brushing together of clothing fabric and lifting one’s foot from a carpeted floor, can generate static electricity sufficient to damage an ESD.

Translated Warnings

The following is a list of all warnings used in this manual translated into French, Italian, German and Spanish.

WARNING

A warning is used whenever an operating or maintenance procedure, practice, condition or statement, if not strictly observed, could result in personal injury.

DANGER: Une note Danger est utilisée chaque fois qu'une procédure d'utilisation ou de maintenance peut être cause de blessure si elle n'est pas strictement respectée.

AVVERTENZA: Un segnale di avvertenza è utilizzato ogni volta che una procedura operativa o di manutenzione, una pratica, una condizione o un'istruzione, se non strettamente osservata, potrebbe causare lesioni personali.

VORSICHT: Weist darauf hin, dass ein Abweichen von den angeführten Arbeits- und Wartungsanweisungen gesundheitliche Schäden, möglicherweise sogar schwere Verletzungen zur Folge haben kann.

AVISO:Un aviso se utiliza siempre que un procedimiento de operación o mantenimiento, práctica o condición puede causar daños personales si no se respetan estrictamente.

WARNING

Switch off the electricity to the machine. Disconnect the power cord from the customer supply while performing tasks that do not need electricity. Electricity can cause death or injury. Moving parts can cause injury.

DANGER: Mettez la machine hors tension. Déconnectez le cordon d'alimentation de l'alimentation du client lorsque vous réalisez des tâches qui ne nécessitent pas d'électricité. L'électricité peut être à l'origine de blessures, voire d'un accident mortel. Les pièces amovibles peuvent être à l'origine de blessures.

AVVERTENZA: Spegnere la macchina. Scollegare il cavo di alimentazione dall'alimentatore quando si eseguono attività che non richiedono elettricità. L'elettricità può causare morte o lesioni personali. Le parti in movimento possono causare lesioni personali.

VORSICHT: Schalten Sie die Stromversorgung der Maschine ab. Ziehen Sie das Stromkabel ab, wenn Sie Aufgaben ausführen, für die keine Stromversorgung benötigt wird. Stromschläge können Todesfällen oder Verletzungen verursachen. Bewegliche Teile können zu Verletzungen führen.

AVISO: Apague la electricidad de la máquina. Desconecte el cable de alimentación eléctrica de la toma de pared mientras esté realizando tareas que no necesiten corriente. La electricidad puede causar daños o la muerte. Las partes móviles pueden causar daños.

WARNING

Follow the service procedure exactly as written. Use of controls or adjustments other than those specified in this manual, may result in an exposure to invisible laser radiation. During servicing, the invisible laser radiation can cause eye damage if looked at directly.

DANGER: Les procédures de dépannage doivent être suivies à la lettre. Si les réglages ou vérifications ne sont pas effectués suivant les instructions de ce manuel, il peut y avoir un risque d'exposition dangereuse au faisceau laser. Celui-ci peut provoquer des lésions oculaires s'il est observé directement.

AVVERTENZA: Eseguire le procedure di servizio esattamente come descritto. L'utilizzo di dispositivi di controllo o di registrazione diversi da quelli riportati in questo manuale potrebbe comportare un'esposizione a radiazioni laser invisibili. Tali radiazioni possono danneggiare gli occhi se si guarda direttamente il fascio laser durante gli interventi di servizio.

VORSICHT: Die Wartungsarbeiten genau den Anweisungen entsprechend durchführen. Der Umgang mit Steuer- oder Bedienelementen, deren Verwendung nicht ausdrücklich in diesem Handbuch angewiesen wurde, kann dazu führen, dass unsichtbare Laserstrahlung frei gesetzt wird. Direkter Blickkontakt mit dem Laserstrahl kann bleibende Augenschäden verursachen.

AVISO: Siga los procedimientos de mantenimiento tal como están descritos. El uso de controles o ajustes no especificados en este manual puede tener como resultado la exposición a radiación láser invisible. Durante las operaciones de mantenimiento, la radiación de láser invisible puede causar daños en los ojos si se mira directamente a ella.

WARNING

Avoid exposure to laser beam. Invisible laser radiation.

DANGER: Eviter toute exposition au faisceau laser. Radiation laser invisible.

AVVERTENZA: Evitare l'esposizione al fascio laser. Radiazioni laser invisibili.

VORSICHT: Nicht in den Laserstrahl blicken. Verletzungsgefahr durch unsichtbare Laserstrahlung.

AVISO: Evite la exposición al rayo láser. Radiación de láser invisible.

WARNING

Do not touch the fuser while it is hot.

DANGER: Ne pas toucher au four pendant qu'il est encore chaud.

AVVERTENZA: Non toccare il fonditore quando è caldo.

VORSICHT: Fixierbereich erst berühren, wenn dieser abgekühlt ist.

AVISO: No toque el fusor mientras está caliente.

Health and Safety Incident Reporting

I. Summary

This section defines requirements for notification of health and safety incidents involving Xerox products (equipment and materials) at customer locations.

II. Scope

Xerox Corporation and subsidiaries worldwide.

III. Objective

To enable prompt resolution of health and safety incidents involving Xerox products and to ensure Xerox regulatory compliance.

IV. Definitions

Incident:

An event or condition occurring in a customer account that has resulted in injury, illness or property damage. Examples of incidents include machine fires, smoke generation, physical injury to an operator or service representative. Alleged events and product conditions are included in this definition.

V. Requirements

Initial Report:

1. Xerox organisations shall establish a process for individuals to report product incidents to Xerox Environment Health & Safety within 24 hours of becoming aware of the event.
2. The information to be provided at the time of reporting is contained in Appendix A (Health and Safety Incident Report involving a Xerox product).
3. The initial notification may be made by any of the following methods:
   - For incidents in North America and Developing Markets West (Brazil, Mexico, Latin American North and Latin American South):
     - Phone* Xerox EH&S at: 1-800-828-6571.
     - Electronic mail Xerox EH&S at: Doris.Bush@usa.xerox.com.
     - Fax Xerox EH&S at: 1-585-422-6449 [intelnet 8*222 6449].
   - For incidents in Europe and Developing Markets East (Middle East, Africa, India, China and Hong Kong):
     - Phone* Xerox EH&S at: +44 (0) 1707 353434.
     - Electronic mail Xerox EH&S at: Elaine.Grange@GBR.xerox.com.
     - Fax Xerox EH&S at: +44 (0) 1707 353914 [intelnet 8*668 3914].

   *Initial notification made by phone must be followed within 24 hours by a completed incident report and sent to the indicated electronic mail address or fax number.

Note: *If sending a fax, please also send the original via internal mail.*

Responsibilities for Resolution:

1. Business Groups/Product Design Teams responsible for the product involved in the incident shall:
   a. Manage field bulletins, customer correspondence, product recalls, safety retrofits.
   b. Fund all field retrofits.
2. Field Service Operations shall:
   a. Preserve the Xerox product involved and the scene of the incident inclusive of any associated equipment located in the vicinity of the incident.
   b. Return any affected equipment/part(s) to the location designated by Xerox EH&S and/or the Business Division.
   c. Implement all safety retrofits.
3. Xerox EH&S shall:
   a. Manage and report all incident investigation activities.
   b. Review and approve proposed product corrective actions and retrofits, if necessary.
   c. Manage all communications and correspondence with government agencies.
   d. Define actions to correct confirmed incidents.

VI. Appendices

The Health and Safety Incident Report involving a Xerox Product (Form # EH&S-700) is available at the end of the manual.

1 Service Call Procedures

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SCP 1 Service Call Actions

Procedure

WARNING

Switch off the electricity to the machine. Disconnect the power cord from the customer supply while performing tasks that do not need electricity. Electricity can cause death or injury. Moving parts can cause injury.

1. Take note of symptoms or error messages.
2. Ask the operator to describe or demonstrate the problem.
3. Make sure that:
   - The power cord is connected to the wall outlet and to the machine.
   - All cables are connected correctly.
   - If necessary perform SCP 2 Cleaning.
4. If available, check the machine service log book for any previous actions that may be relevant to the call.
5. Review any defective print or copy samples.
6. Refer to RAP 2 Error Messages for a list of error messages and possible solutions.

SCP 2 Cleaning

To keep the terminal in good working condition, the following operations should be carried out regularly:

Front Panel Keys and Covers

Cleaning the Front Panel Keys

1. Set the On/off switch to Off (position 0).
2. Clean the top of the front panel and the keys with a lint-free cloth moistened with isopropyl alcohol or a spray-on cleaning product.
3. Leave the product on for a few seconds before wiping it off.

Cleaning the Covers

It is advisable to clean all the covers during a maintenance visit.

1. Set the On/Off switch to Off (position 0).
2. Clean the external areas of the covers with a lint-free cloth moistened with isopropyl alcohol or a spray-on cleaning product.
3. Leave the product on for a few seconds before wiping it off.

SCP 3 Troubleshooting

Procedure of Checking the Symptoms

Before attempting to repair the printer first obtain a detailed description of the problem from the customer.

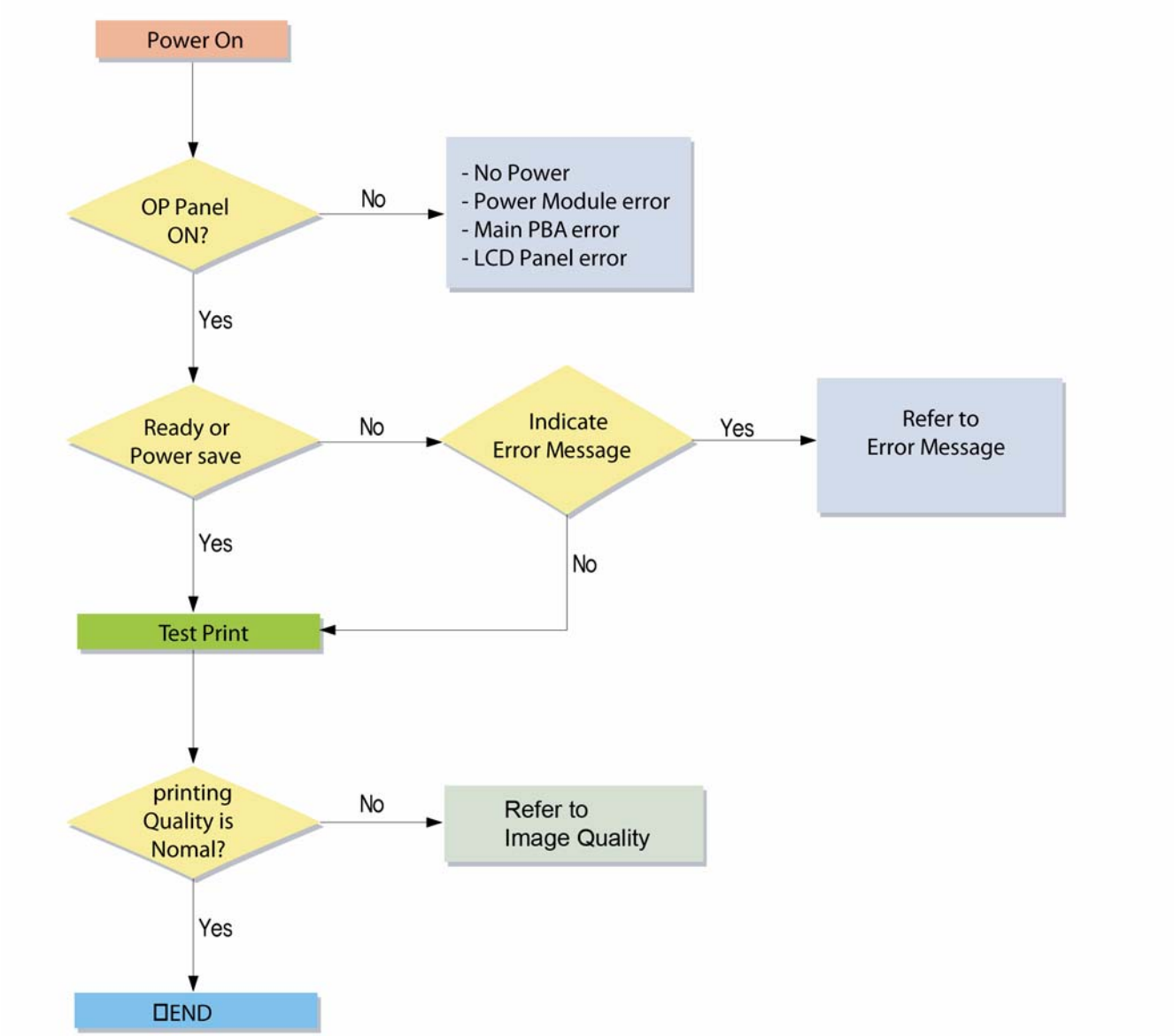

Figure 1

SCP 4 Final Actions

After the machine has been re-assembled, perform the steps that follow:

1. Exercise the machine in all modes.
2. Make a proof copy or print of a customer document.
3. If any of the customers selections were changed, return them to the customers preferred settings.
4. Mark off any hardware/software options and modifications installed and/or enabled in the Service Log Book. Refer to GP 13.
5. At the first service and at any subsequent service where changes are made or options are added, print the configuration report and store it with the machine log book. Discard any previous versions of the configuration report.
6. Remove and destroy any copies of test patterns.
7. Complete the machine service log book, refer to GP 13 Service Log.
8. Ensure the machine and service area are clean before leaving the customer premises.
9. Provide customer training if required.

SCP 5 Consumables and Replacement Parts

To avoid print quality and paper feed problems resulting from worn parts and to maintain the printer in top working condition the following items will need to be replaced at the specified number of pages or when the life span of each item has expired.

COMPONENT	REPLACEMENT CYCLE
Pick-up Roller	150K Pages
Transfer Roller	70K Pages
Fuser	80K Pages
Print Cartridge	10K Pages (Sales), 4K Pages (Initial)

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RAP 1 LED Status Error

Status		Description
Off		• The printer is off-line and cannot print. • The printer is in power save mode. When data is received, it switches to on-line automatically.
Green	On	The printer is on-line and can receive data from the computer.
	Blinking	• When the backlight blinks slowly, the printer is receiving data from the computer. • When the backlight blinks quickly, the printer is receiving and printing data.
Red	On	• The print cartridge is totally exhausted. Remove the old print cartridge and install a new one. • A paper jam has occurred. To solve the problem, go to RAP 4 Paper Jams. • The front cover is open. Close the front cover. • There is no paper in the tray. Load paper in the tray. • The printer has stopped printing due to a major error. Check the display message. for details on the meaning of the error message.
	Blinking	• A minor error is occurring and the printer is waiting for the error to be cleared. Check the display message. When the problem is cleared, the printer resumes printing. • The print cartridge is low. Order a new print cartridge. You can temporarily improve print quality by redistributing the toner.

RAP 2 Error Messages

Message	Meaning	Suggested solutions
Door Open	The front cover or rear cover is not securely latched.	Close the cover until it locks into place.
Duplex Jam 0 Check Inside	Paper has jammed during duplex printing.	Clear the jam.
Duplex Jam 1 Open/ Close Door	Paper has jammed during duplex printing.	Clear the jam.
Fuser Door Open	The fuser door is not securely latched.	Open the rear cover and close the fuser door until it locks into place. For the location of the fuser door.
Install Toner	A print cartridge is not installed.	Install a print cartridge.
Invalid Toner	The print cartridge you have installed is not for your printer.	Install a genuine print cartridge, designed for your printer.
Load Manual Press Stop Key	The multi-purpose tray is empty in manual feed mode.	Load a sheet of print material and press OK.
Low Heat Error Cycle Power	There is a problem in the fuser unit.	Replace to Fuser Unit.
LSU Hsync Error Cycle Power	A problem has occurred in the LSU (Laser Scanning Unit).	Replace to LSU Unit.
LSU Motor Error Cycle Power	A problem has occurred in the LSU (Laser Scanning Unit).	Replace to LSU Unit.
Main Motor Locked	There is a problem in the main motor.	Open and then close the front cover.
Open Heat Error Cycle Power	There is a problem in the fuser unit.	Unplug the power cord and plug it back in. If the problem persists, please call for service.
Over Heat Error Cycle Power	There is a problem in the fuser unit.	Unplug the power cord and plug it back in. If the problem persists, please call for service.
Paper Jam 0 Open/ Close Door	Paper has jammed in the feeding area of the tray.	Clear the jam.
Paper Jam 1 Open/ Close Door	Paper has jammed in the fuser area.	Clear the jam.
Paper Jam 2 Check Inside	Paper has jammed in the paper exit area.	Clear the jam.
Printing...	The printer is printing jobs using the displayed language.	Complete your printing.
Ready	The printer is on-line and ready to printer.	Use your printer.
Replace Toner	This message appears between the Toner Empty and Toner Low status.	Replace the print cartridge with a new one.

Self Diagnostic...	The engine in your printer is checking some problems detected.	Please wait a few minutes.
Sleeping...	The printer is on power save mode.	When data is received, it switches to on-line automatically.
Toner Empty	The print cartridge has run out. The printer stops printing.	Replace the print cartridge with a new one.
Toner Low	The print cartridge is almost empty.	Take out the print cartridge and thoroughly shake it. By doing this, you can temporarily reestablish printing operations.
Tray 1 Paper Empty	There is no paper in the tray 1.	Load paper in the tray 1.
Tray 2 Paper Empty	There is no paper in the optional tray 2.	Load paper in the optional tray 2.

RAP 3 Nothing Displayed on LCD

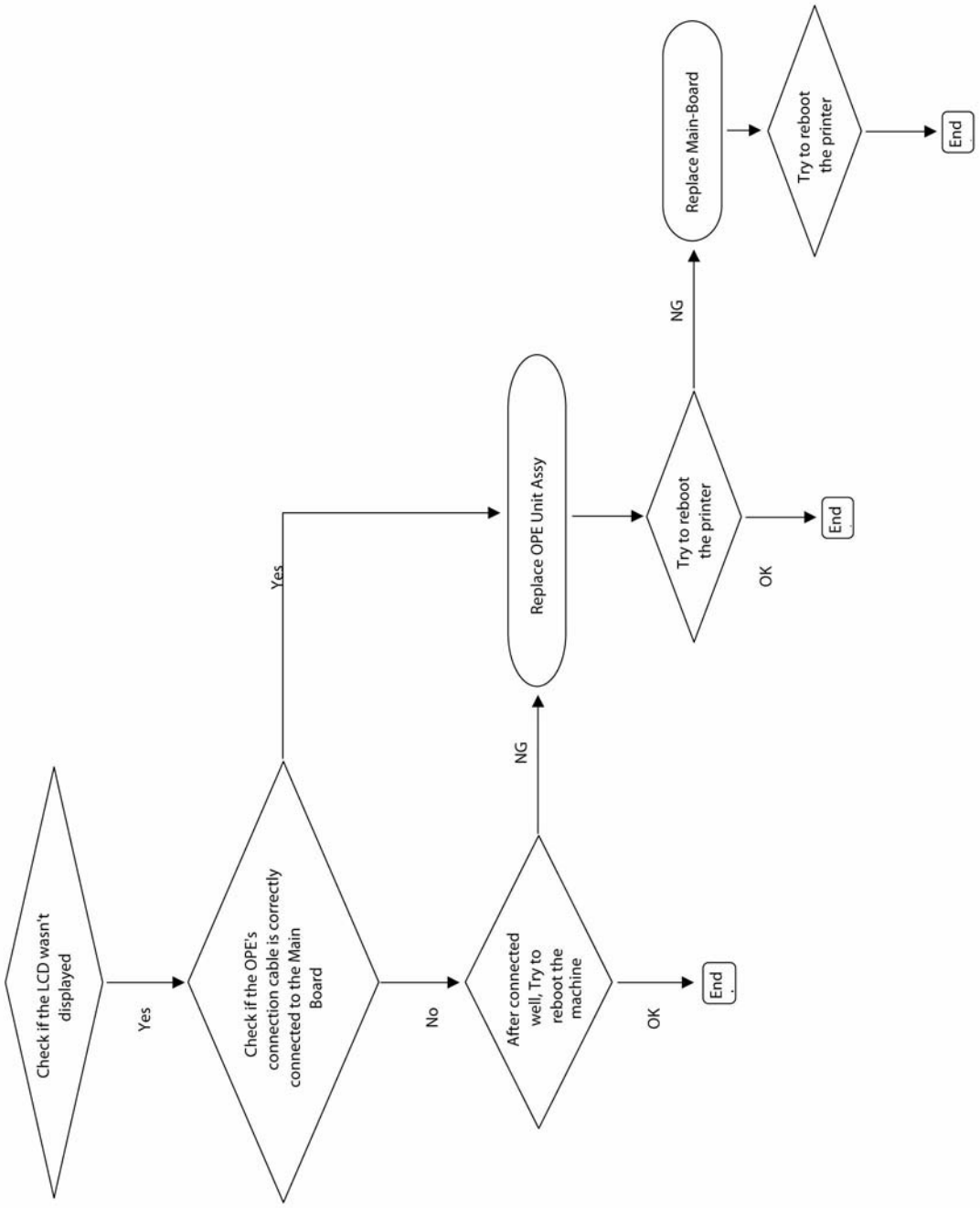

Figure 1

RAP 4 Paper Jams

Clearing Paper Jams

Message	Location of Jam
Paper Jam 0 Open/Close Door	In the paper feed area (tray 1, optional tray 2, multi-purpose tray)
Paper Jam 1	Around the print cartridge
Open/Close Door Paper Jam 2	Check Inside In the paper exit area
Duplex Jam 0 Check Inside	In the duplex area
Duplex Jam 1 Open/Close Door	Between the duplex unit and fuser area

Jams in the Paper Feed Area

In the Tray

1. Pull the tray 1

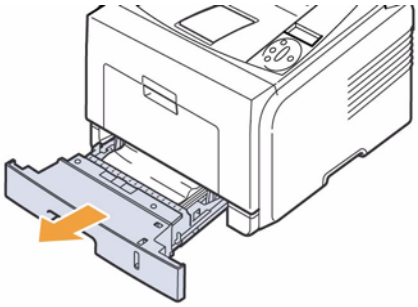

Figure 1

2. Remove the jammed paper by gently pulling it straight out. Make sure that all of the paper is properly aligned in the tray 1.

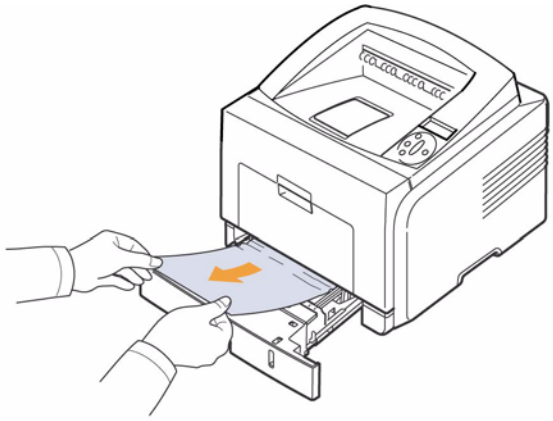

Figure 2

If the paper is not move when you pull, or if you do not see the paper in this area, check the fuser area around the print cartridge.

3. Insert the tray 1 into the printer until it snaps into place. Printing automatically resumes.

In the Optional Tray 2

1. Pull the optional tray 2 open.
2. Remove the jammed paper from the printer.

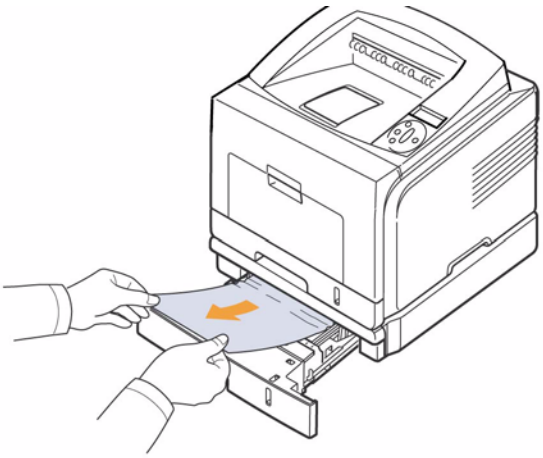

Figure 3

If the paper is not move when you pull, or if you do not see the paper in this area, stop and go to step 3.

3. Pull the tray 1 half.
4. Pull the paper straight up and out.

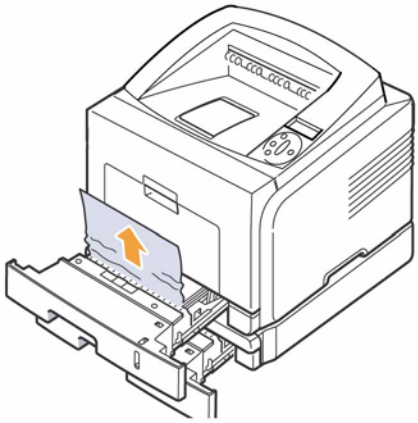

Figure 4

5. Insert the trays back into the printer. Printing automatically resumes.

In the Multi-Purpose Tray

1. If the paper is not feeding properly, pull the paper out of the printer.

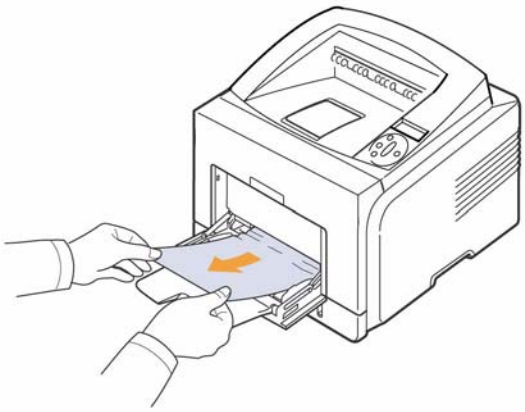

Figure 5

2. Open and close the front cover to resume printing.

Around the Print Cartridge

1. Open the front cover and pull the print cartridge out.

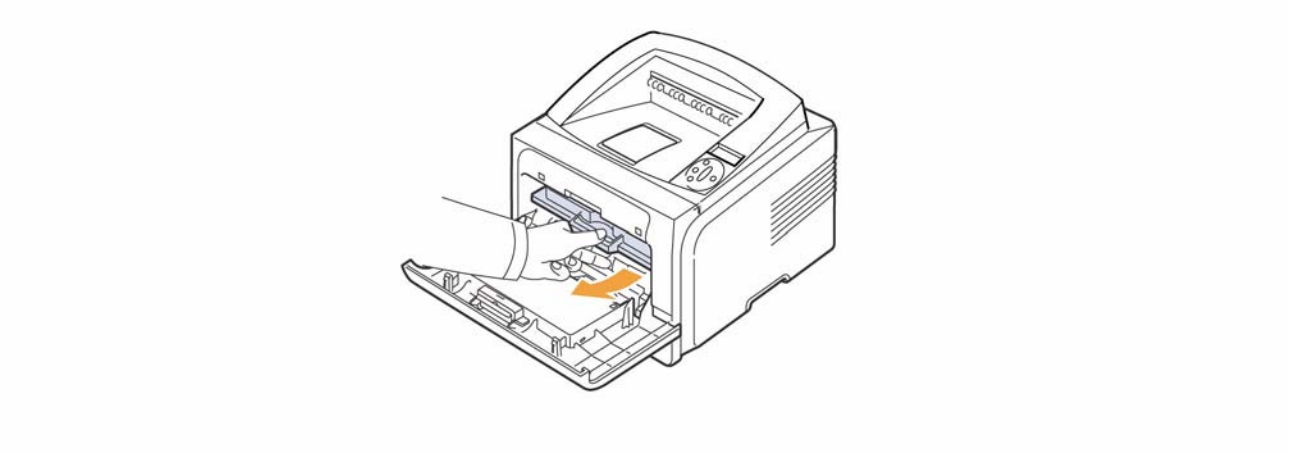

Figure 1

2. Remove the jammed paper by gently pulling it straight out.

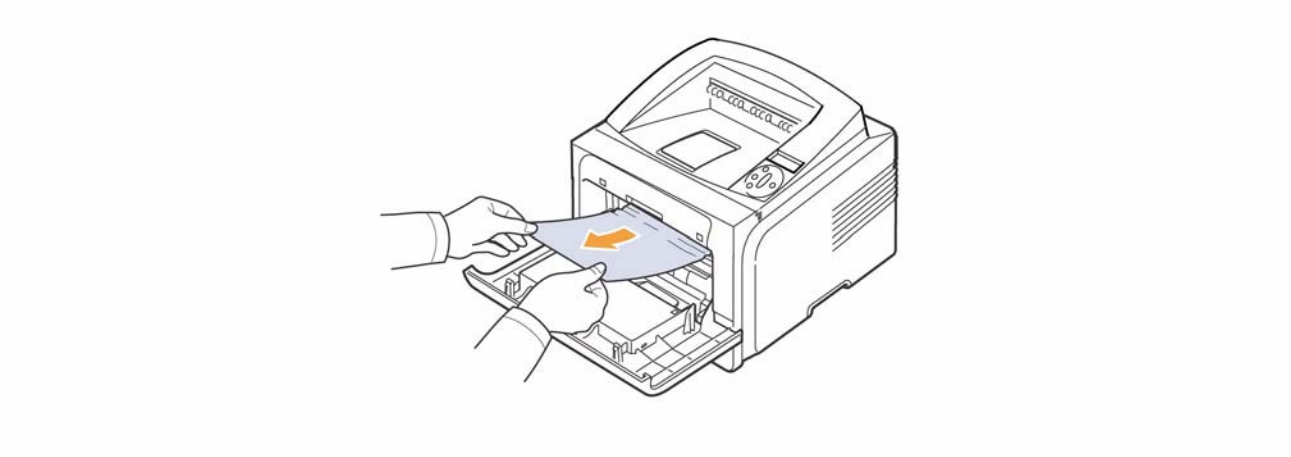

Figure 2

3. Replace the print cartridge and close the front cover. Printing automatically resumes.

In the Paper Exit Area

1. Open and close the front cover. The jammed paper is automatically ejected from the printer.
2. Gently pull the paper out of the output tray.

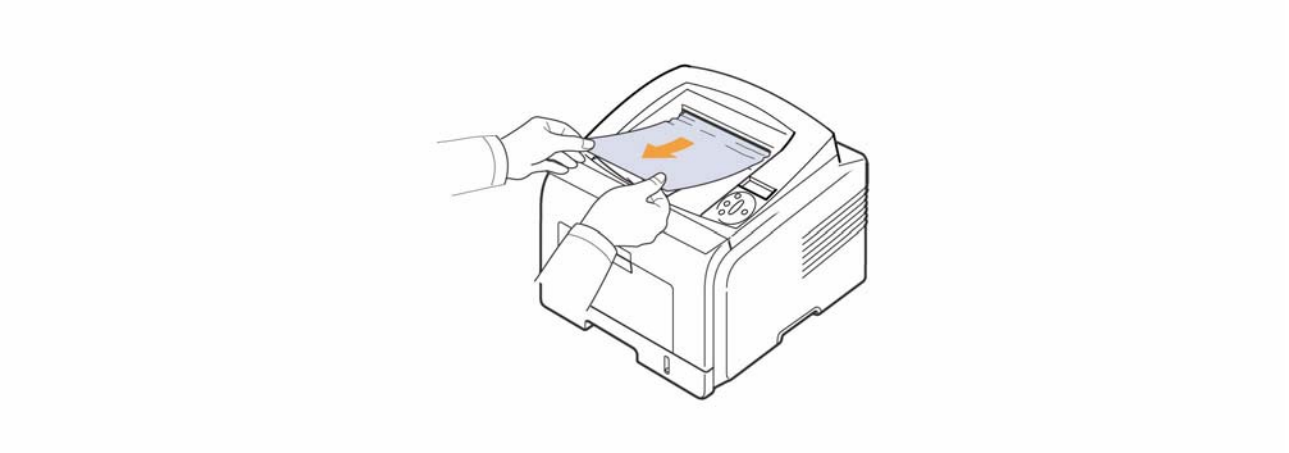

Figure 1

If you do not see the jammed paper or if there is any resistance when you pull, stop and go to the next step.

3. Open the rear cover.
4. If you see the jammed paper, push the pressure lever on each side up and remove the paper. Return the pressure lever to its original position.

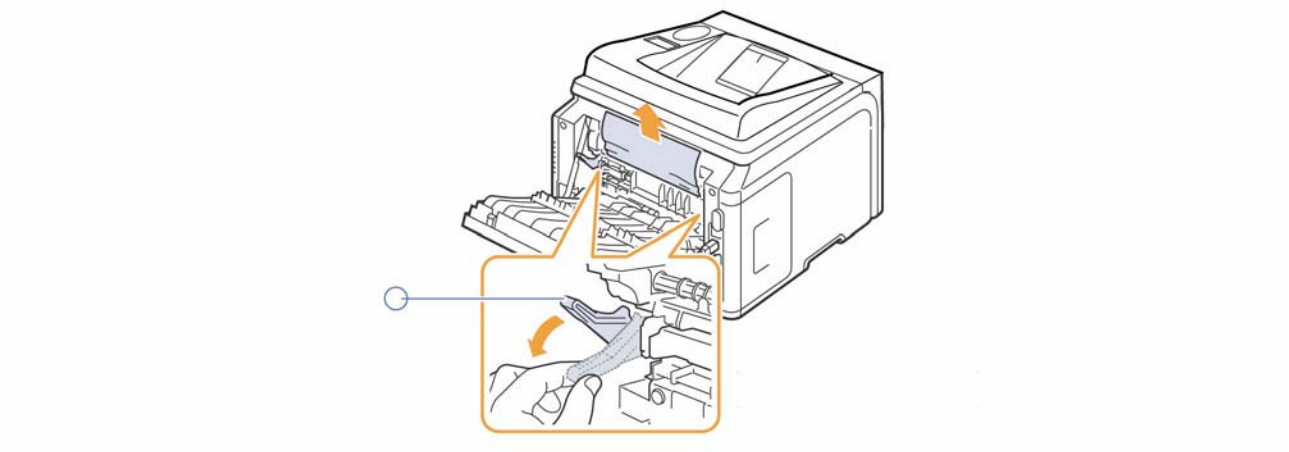

Figure 2

If you still do not see the paper, go to the next step.

5. Release the blue strap, the rear cover stopper, and fully open the rear cover, as shown.

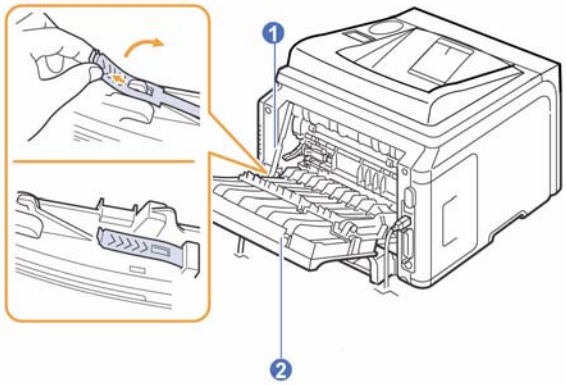

Figure 3

6. Unfold the duplex guide fully.

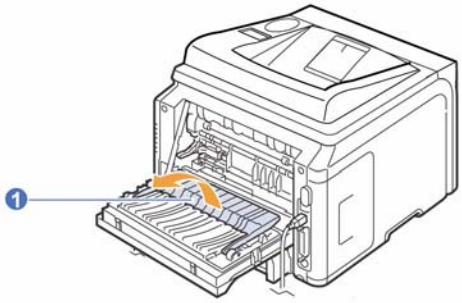

Figure 4

7. While pushing the fuser lever to the right, open the fuser door.

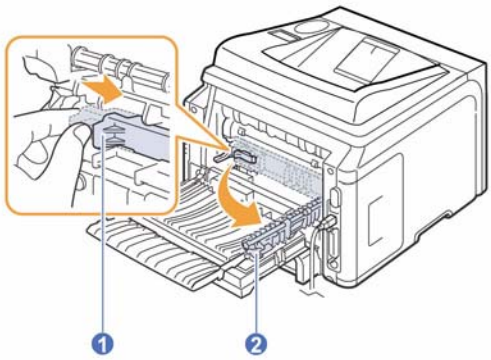

Figure 5

8. Pull the jammed paper out.
   If the jammed paper does not move when you pull, push the pressure lever on each side up to loose the paper, and then remove it.

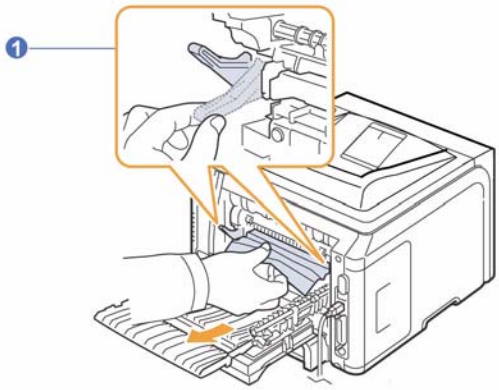

Figure 6

9. Return the lever, door, stopper, and guide to their original position.
10. Close the rear cover. Printing automatically resumes.

In the Duplex Unit Area

If the duplex unit is not inserted correctly, paper jam may occur. Make sure that the duplex unit is inserted correctly.

Duplex jam 0

1. Pull the duplex unit out of the printer.

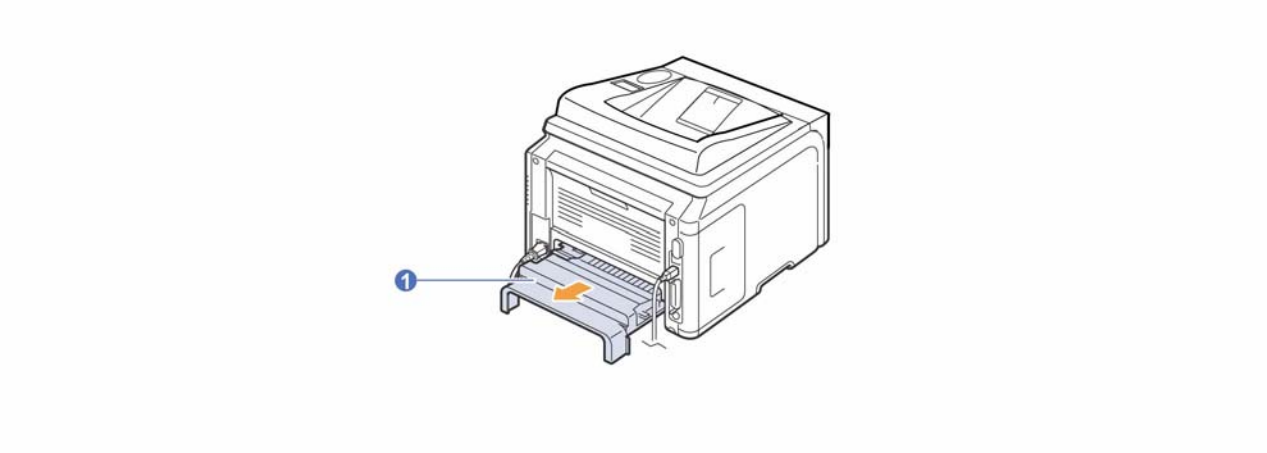

Figure 1

2. Remove the jammed paper from the duplex unit.

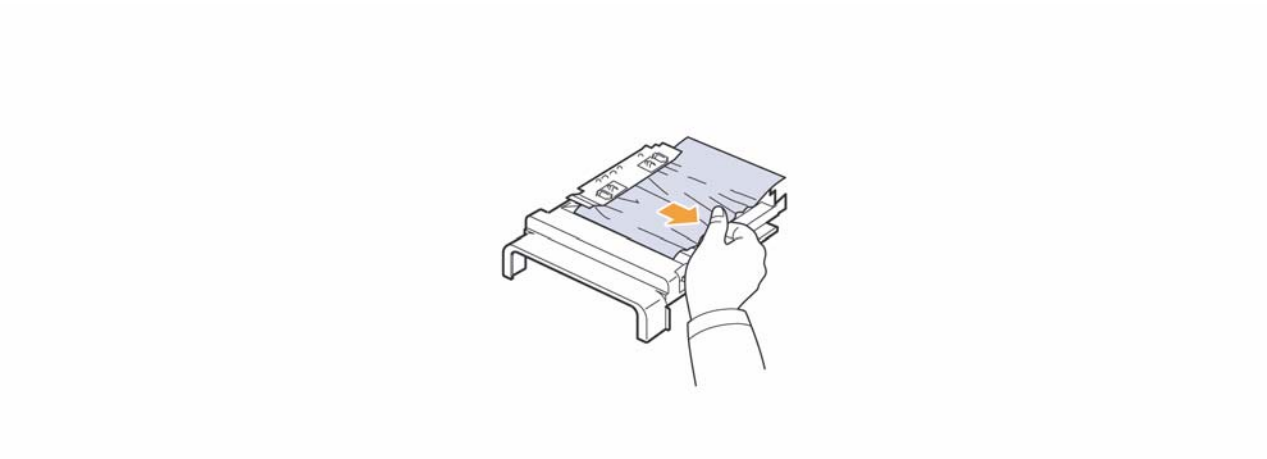

Figure 2

If the paper does not come out with the duplex unit, remove the paper from the bottom of the printer.

Figure 3

Duplex jam 1

1. Open the rear cover.
2. Unfold the duplex guide fully.

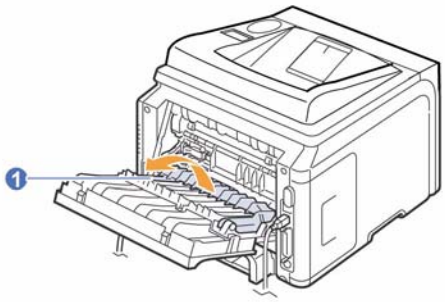

Figure 4

3. Pull the jammed paper out.

Figure 5

RAP 5 JAM 0

1. Paper is not exited from the cassette.
2. Jam-0 occurs when the paper feeds into the printer.

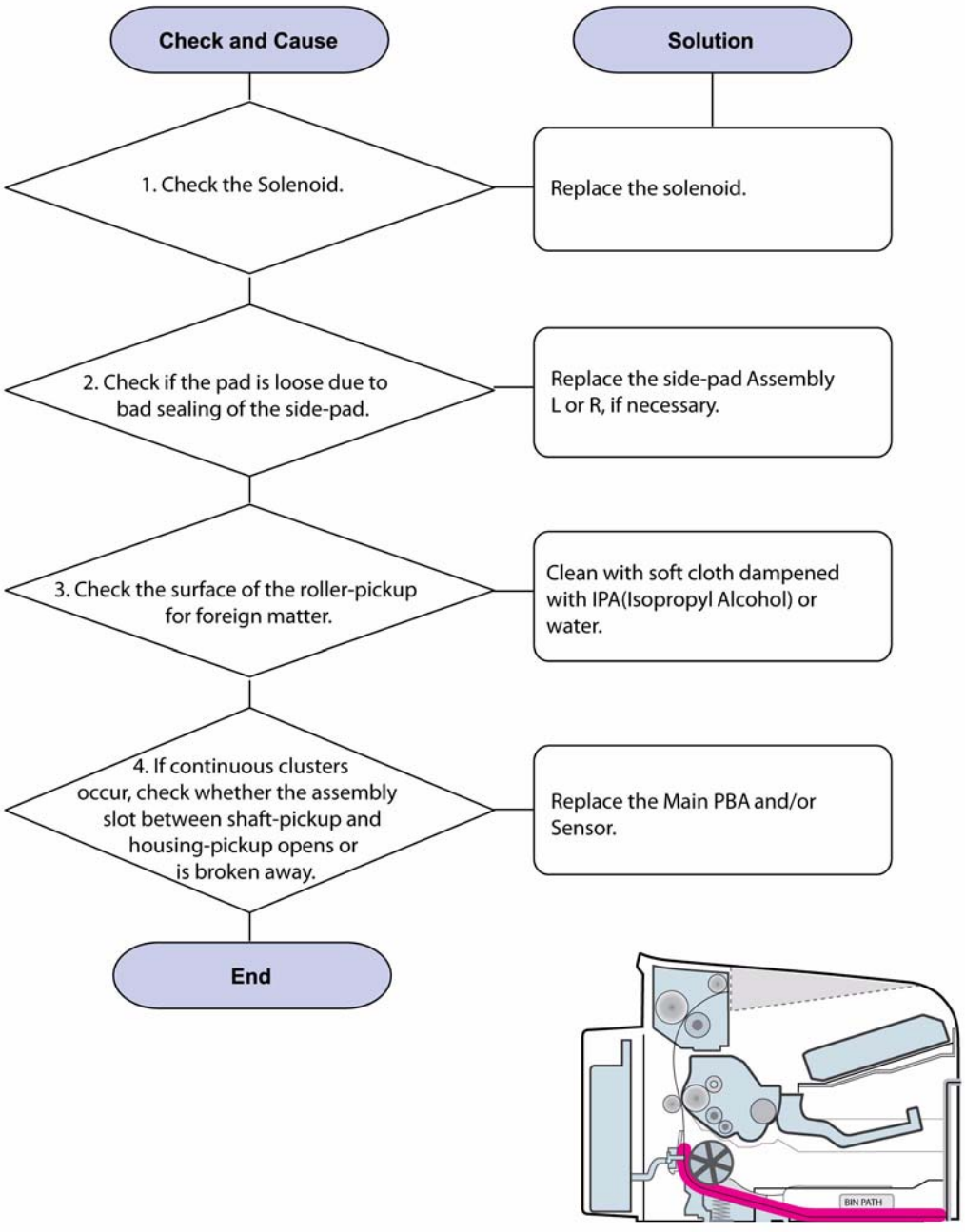
Check and Cause
Solution
1. Check the Solenoid.
Replace the solenoid.
2. Check if the pad is loose due to bad sealing of the side-pad.
Replace the side-pad Assembly L or R, if necessary.
3. Check the surface of the roller-pickup for foreign matter.
Clean with soft cloth dampened with IPA(Isopropyl Alcohol) or water.
4. If continuous clusters occur, check whether the assembly slot between shaft-pickup and housing-pickup opens or is broken away.
Replace the Main PBA and/or Sensor.
End
BIN PATH

Figure 1

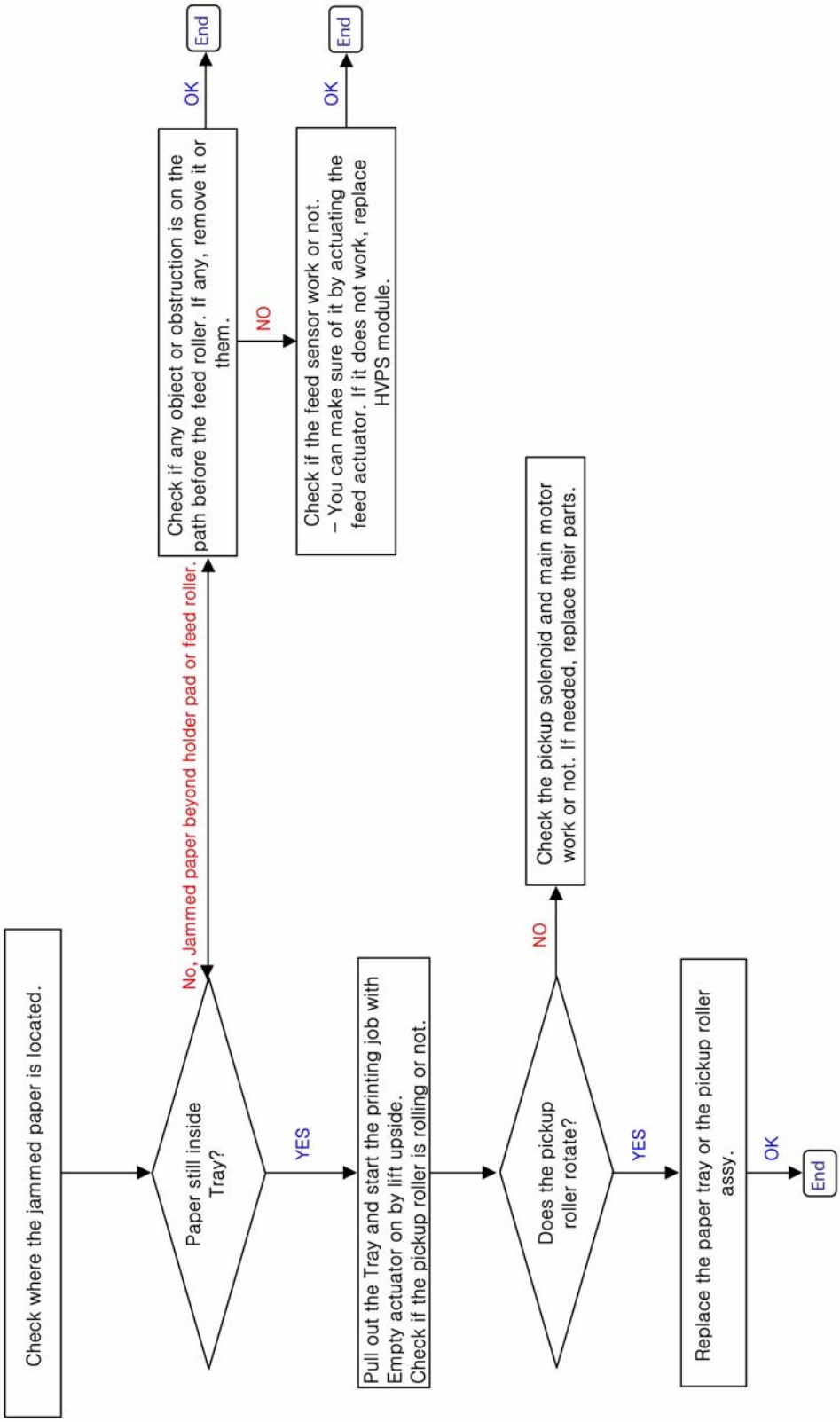
Check where the jammed paper is located.
Paper still inside Tray?
No, Jammed paper beyond holder pad or feed roller.
Check if any object or obstruction is on the path before the feed roller. If any, remove it or them.
OK
End
NO
Check if the feed sensor work or not.
– You can make sure of it by actuating the feed actuator. If it does not work, replace HVPS module.
OK
End
YES
Pull out the Tray and start the printing job with Empty actuator on by lift upside.
Check if the pickup roller is rolling or not.
Does the pickup roller rotate?
NO
Check the pickup solenoid and main motor work or not. If needed, replace their parts.
YES
Replace the paper tray or the pickup roller assy.
OK
End

Figure 2

RAP 6 JAM 1

Description

1. Paper is jammed in front of or inside the fuser.
2. Paper is stuck in the discharge roller and in the fuser just after passing through the feed sensor actuator.

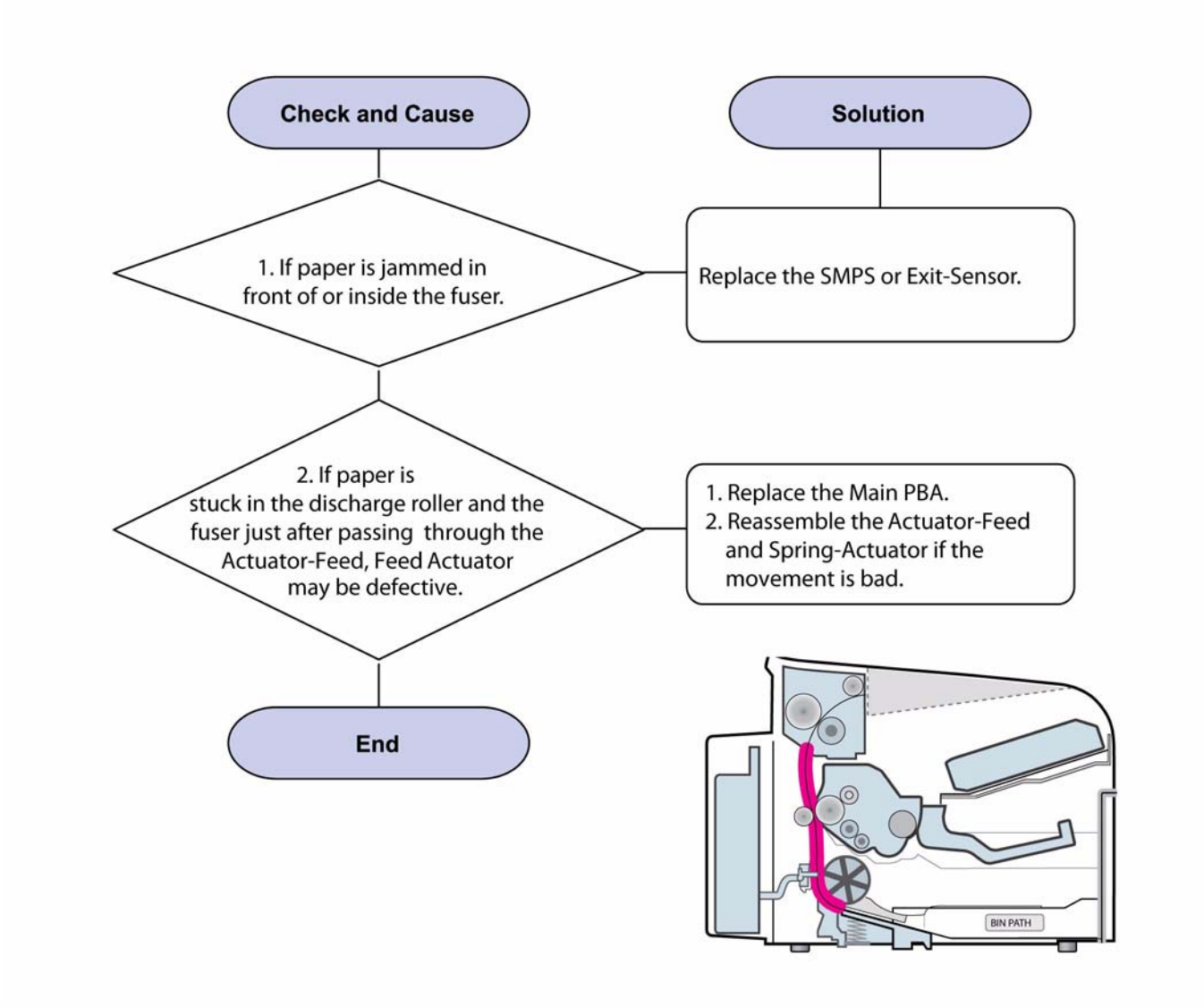
Check and Cause
Solution
1. If paper is jammed in front of or inside the fuser.
Replace the SMPS or Exit-Sensor.
2. If paper is stuck in the discharge roller and the fuser just after passing through the Actuator-Feed, Feed Actuator may be defective.
1. Replace the Main PBA.
2. Reassemble the Actuator-Feed and Spring-Actuator if the movement is bad.
End
BIN PATH

Figure 1

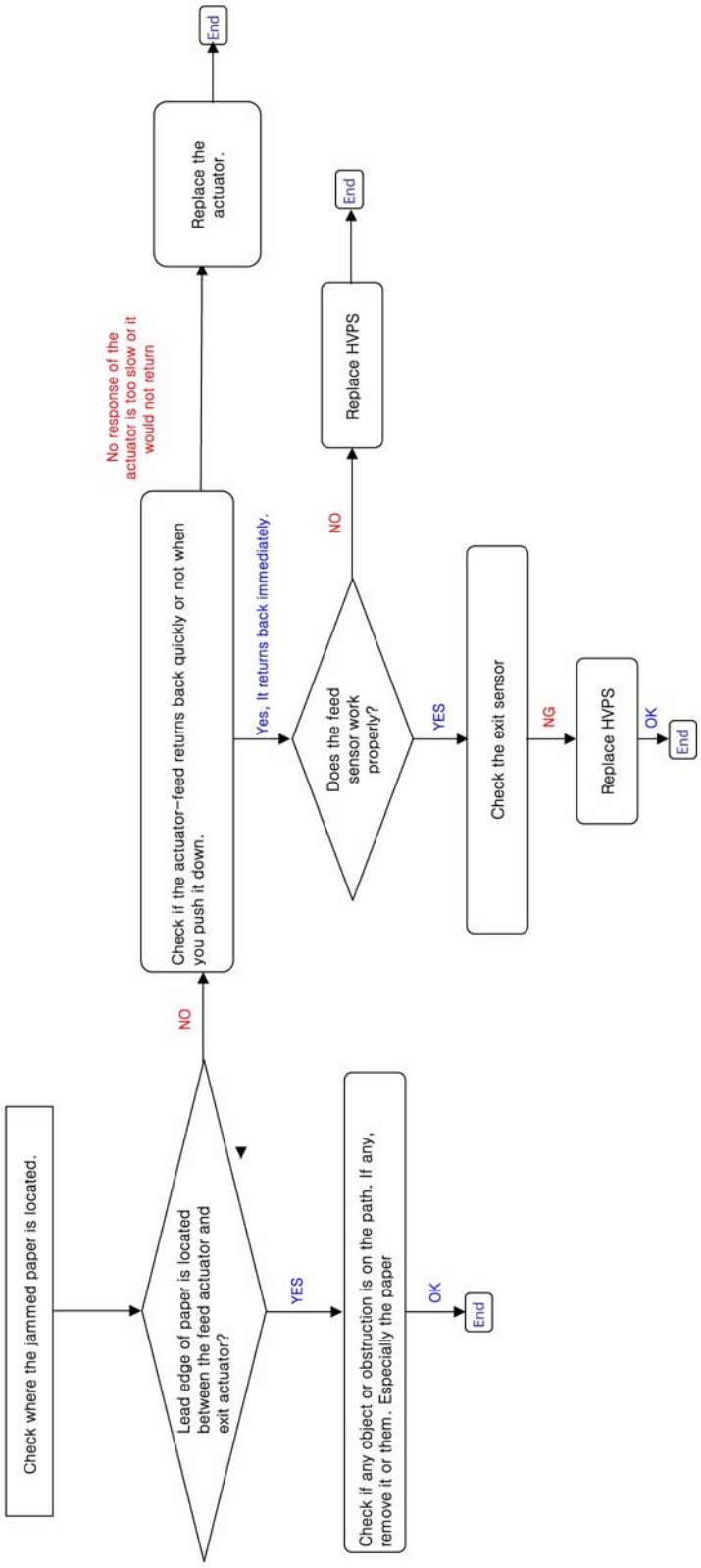
Check where the jammed paper is located.
Lead edge of paper is located between the feed actuator and exit actuator?
NO
YES
Check if the actuator-feed returns back quickly or not when you push it down.
No response of the actuator is too slow or it would not return
Replace the actuator.
End
Yes, It returns back immediately.
Does the feed sensor work properly?
NO
Replace HVPS
End
YES
Check the exit sensor
NG
Replace HVPS
OK
End
Check if any object or obstruction is on the path. If any, remove it or them. Especially the paper
OK
End

Figure 2

RAP 7 JAM 2

Description

1. Paper is jammed in front of or inside the fuser.
2. Paper is stuck in the discharge roller and in the fuser just after passing through the Actuator-Feed.

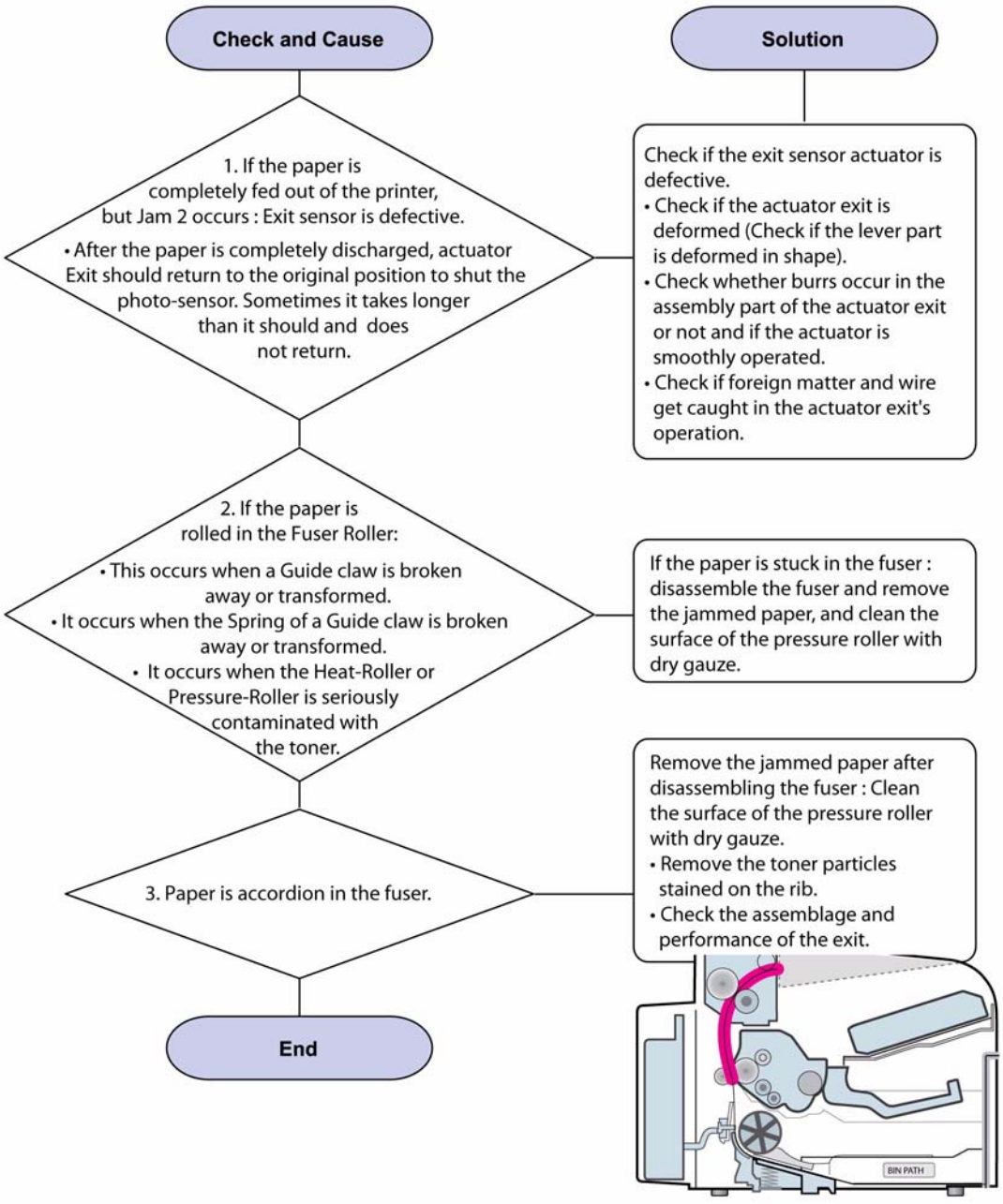
Check and Cause
Solution
1. If the paper is completely fed out of the printer, but Jam 2 occurs : Exit sensor is defective.
• After the paper is completely discharged, actuator Exit should return to the original position to shut the photo-sensor. Sometimes it takes longer than it should and does not return.
Check if the exit sensor actuator is defective.
• Check if the actuator exit is deformed (Check if the lever part is deformed in shape).
• Check whether burrs occur in the assembly part of the actuator exit or not and if the actuator is smoothly operated.
• Check if foreign matter and wire get caught in the actuator exit's operation.
2. If the paper is rolled in the Fuser Roller:
• This occurs when a Guide claw is broken away or transformed.
• It occurs when the Spring of a Guide claw is broken away or transformed.
• It occurs when the Heat-Roller or Pressure-Roller is seriously contaminated with the toner.
If the paper is stuck in the fuser : disassemble the fuser and remove the jammed paper, and clean the surface of the pressure roller with dry gauze.
3. Paper is accordion in the fuser.
Remove the jammed paper after disassembling the fuser : Clean the surface of the pressure roller with dry gauze.
• Remove the toner particles stained on the rib.
• Check the assemblage and performance of the exit.
End
BIN PATH

Figure 1

RAP 8 JAM Duplex 1

Description

A message “Jam Duplex 1” is displayed in a LCD window.

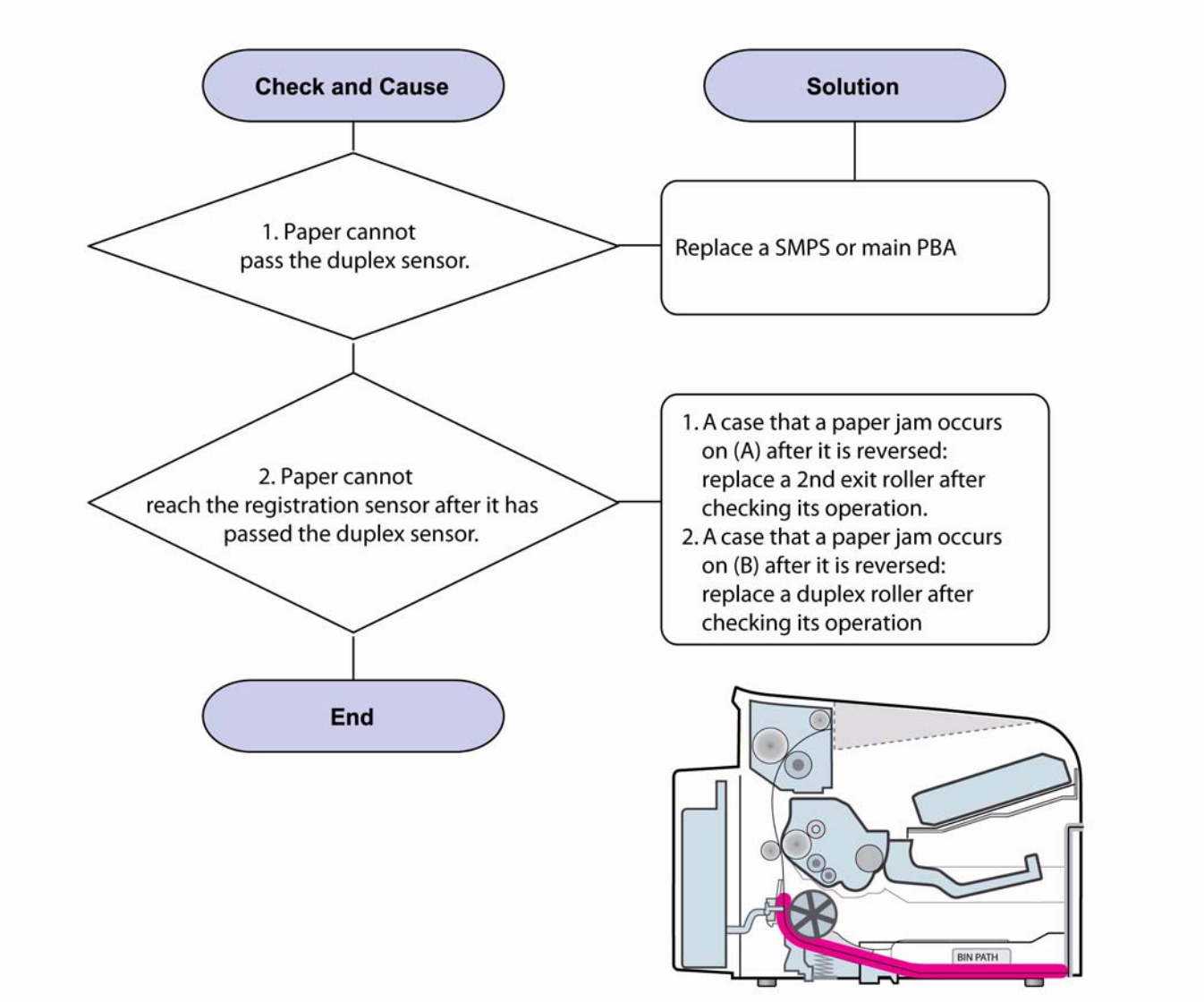
Check and Cause
Solution
1. Paper cannot pass the duplex sensor.
Replace a SMPS or main PBA
2. Paper cannot reach the registration sensor after it has passed the duplex sensor.
1. A case that a paper jam occurs on (A) after it is reversed: replace a 2nd exit roller after checking its operation.
2. A case that a paper jam occurs on (B) after it is reversed: replace a duplex roller after checking its operation
End
BIN PATH

Figure 1

RAP 9 JAM Duplex 2

Description

A message “Jam Duplex 2” is displayed in a LCD window.

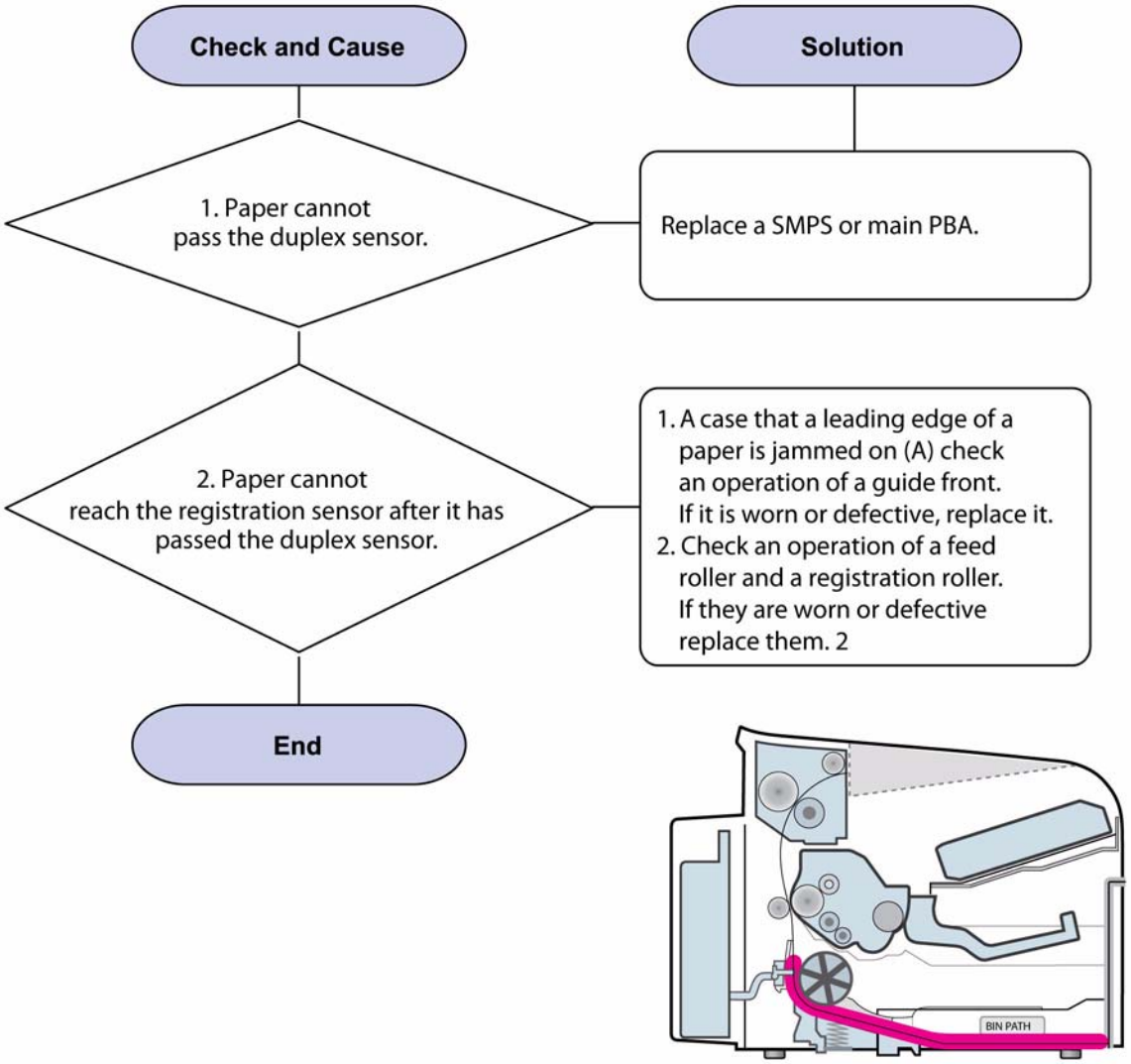
Check and Cause
Solution
1. Paper cannot pass the duplex sensor.
Replace a SMPS or main PBA.
2. Paper cannot reach the registration sensor after it has passed the duplex sensor.
1. A case that a leading edge of a paper is jammed on (A) check an operation of a guide front. If it is worn or defective, replace it.
2. Check an operation of a feed roller and a registration roller. If they are worn or defective replace them. 2
End
BIN PATH

Figure 1

RAP 10 Multi-Feeding

Description

Multiple sheets of paper are fed at once.

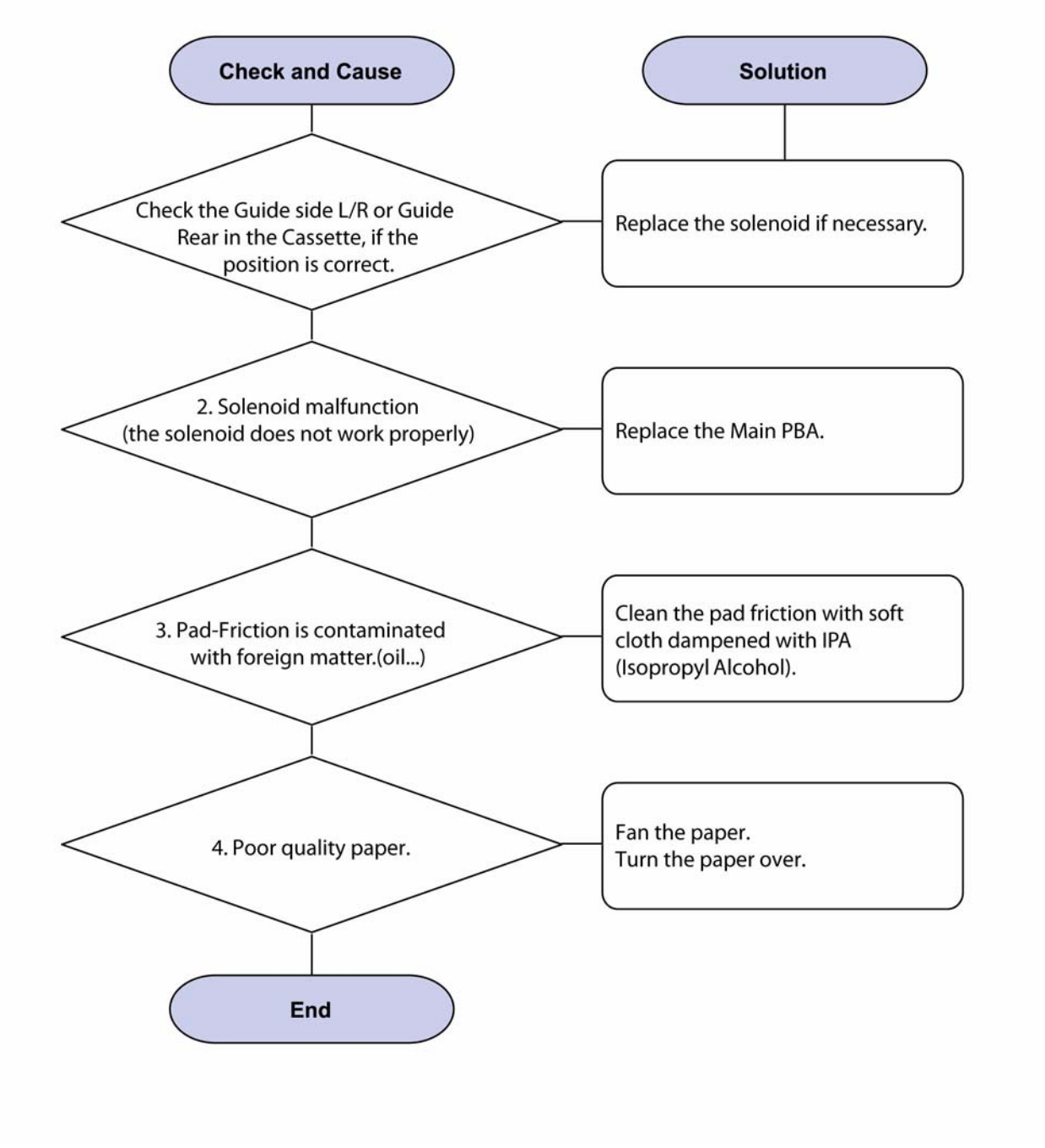
Check and Cause
Solution
Check the Guide side L/R or Guide Rear in the Cassette, if the position is correct.
Replace the solenoid if necessary.
2. Solenoid malfunction (the solenoid does not work properly)
Replace the Main PBA.
3. Pad-Friction is contaminated with foreign matter.(oil...)
Clean the pad friction with soft cloth dampened with IPA (Isopropyl Alcohol).
4. Poor quality paper.
Fan the paper.
Turn the paper over.
End

Figure 1

RAP 11 Paper Rolled in the Fuser

Description

Paper is jammed in the fuser.

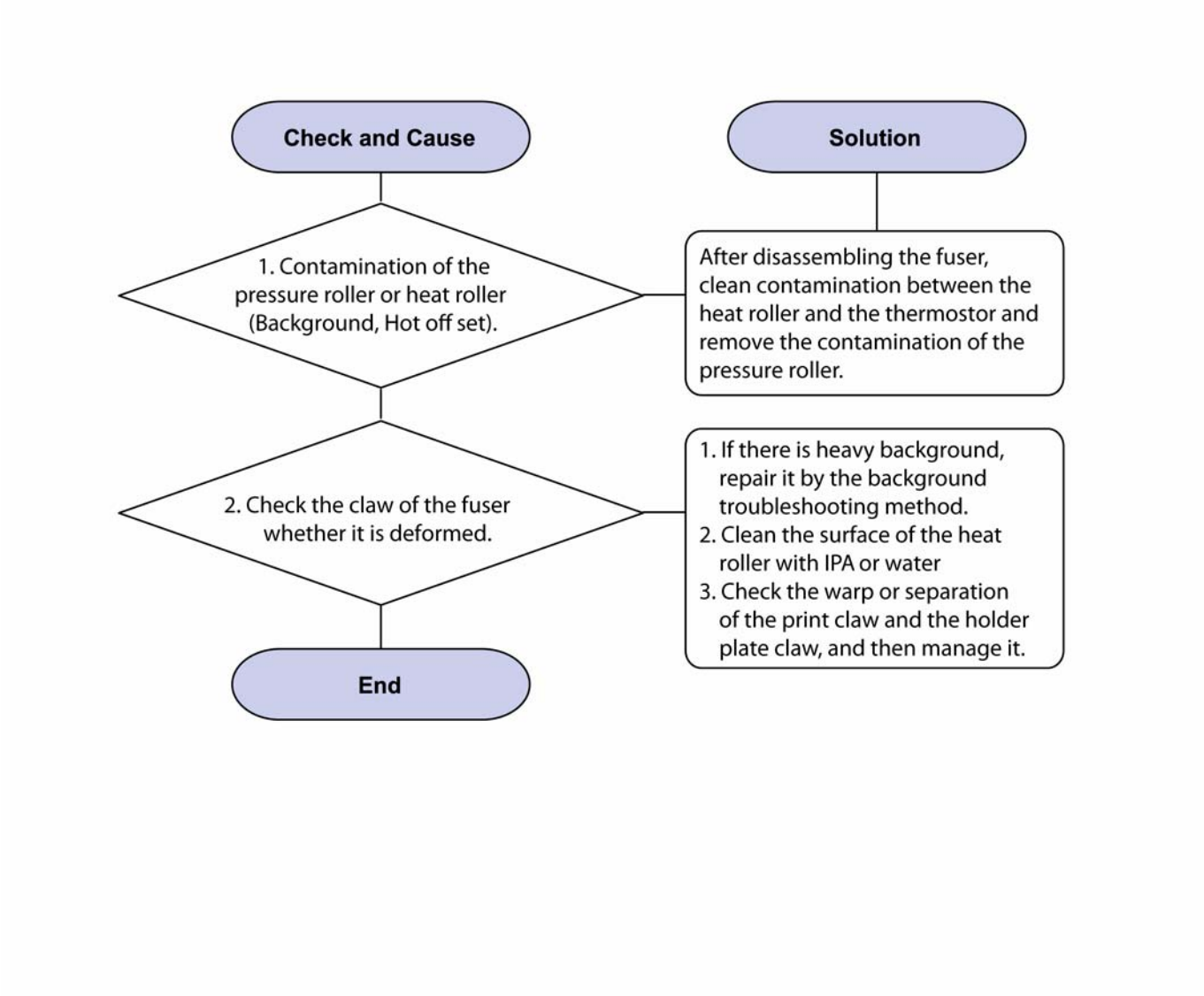
Check and Cause
Solution
1. Contamination of the pressure roller or heat roller (Background, Hot off set).
After disassembling the fuser, clean contamination between the heat roller and the thermostor and remove the contamination of the pressure roller.
2. Check the claw of the fuser whether it is deformed.
1. If there is heavy background, repair it by the background troubleshooting method.
2. Clean the surface of the heat roller with IPA or water
3. Check the warp or separation of the print claw and the holder plate claw, and then manage it.
End

Figure 1

RAP 12 Paper Rolled on the OPC Drum

Description

Paper is rolled up in the OPC.

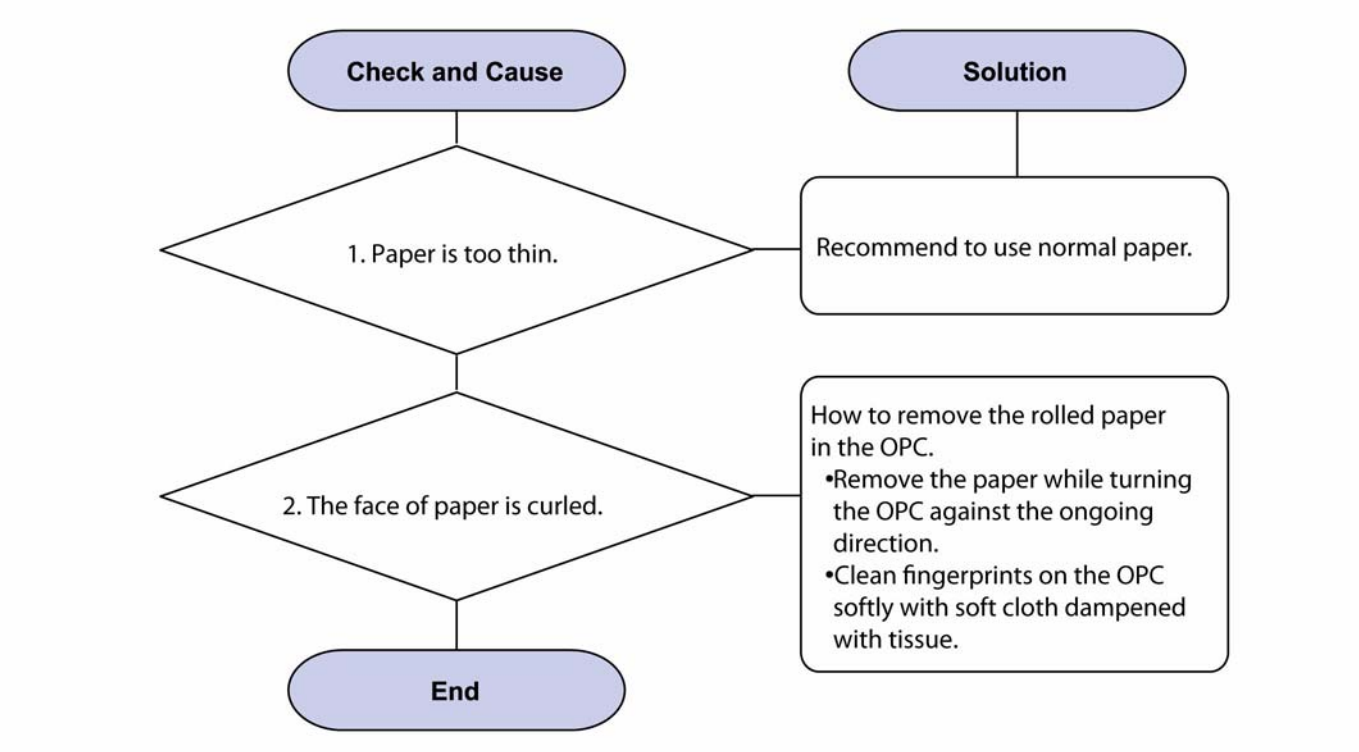
Check and Cause
Solution
1. Paper is too thin.
Recommend to use normal paper.
2. The face of paper is curled.
How to remove the rolled paper in the OPC.
•Remove the paper while turning the OPC against the ongoing direction.
•Clean fingerprints on the OPC softly with soft cloth dampened with tissue.
End

Figure 1

RAP 13 Fuser Error

Description

A message “Open fuser/Over heat/Low heat” is displace in a LCD panel.

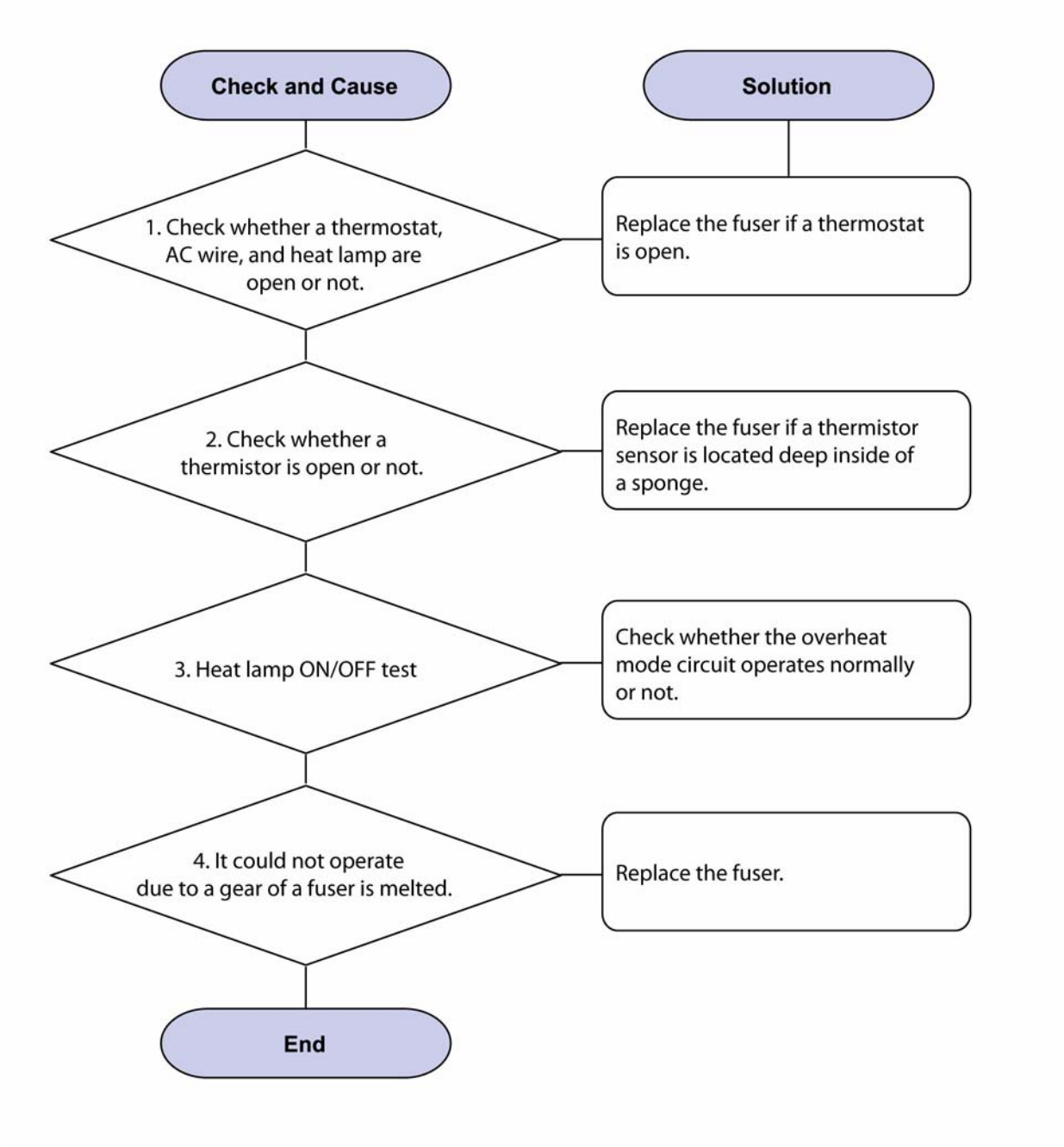
Check and Cause
Solution
1. Check whether a thermostat, AC wire, and heat lamp are open or not.
Replace the fuser if a thermostat is open.
2. Check whether a thermistor is open or not.
Replace the fuser if a thermistor sensor is located deep inside of a sponge.
3. Heat lamp ON/OFF test
Check whether the overheat mode circuit operates normally or not.
4. It could not operate due to a gear of a fuser is melted.
Replace the fuser.
End

Figure 1

RAP 14 LSU Error

Description

A message “PMOTOR ERROR/HSYNC ERROR” is displayed in a LCD panel.

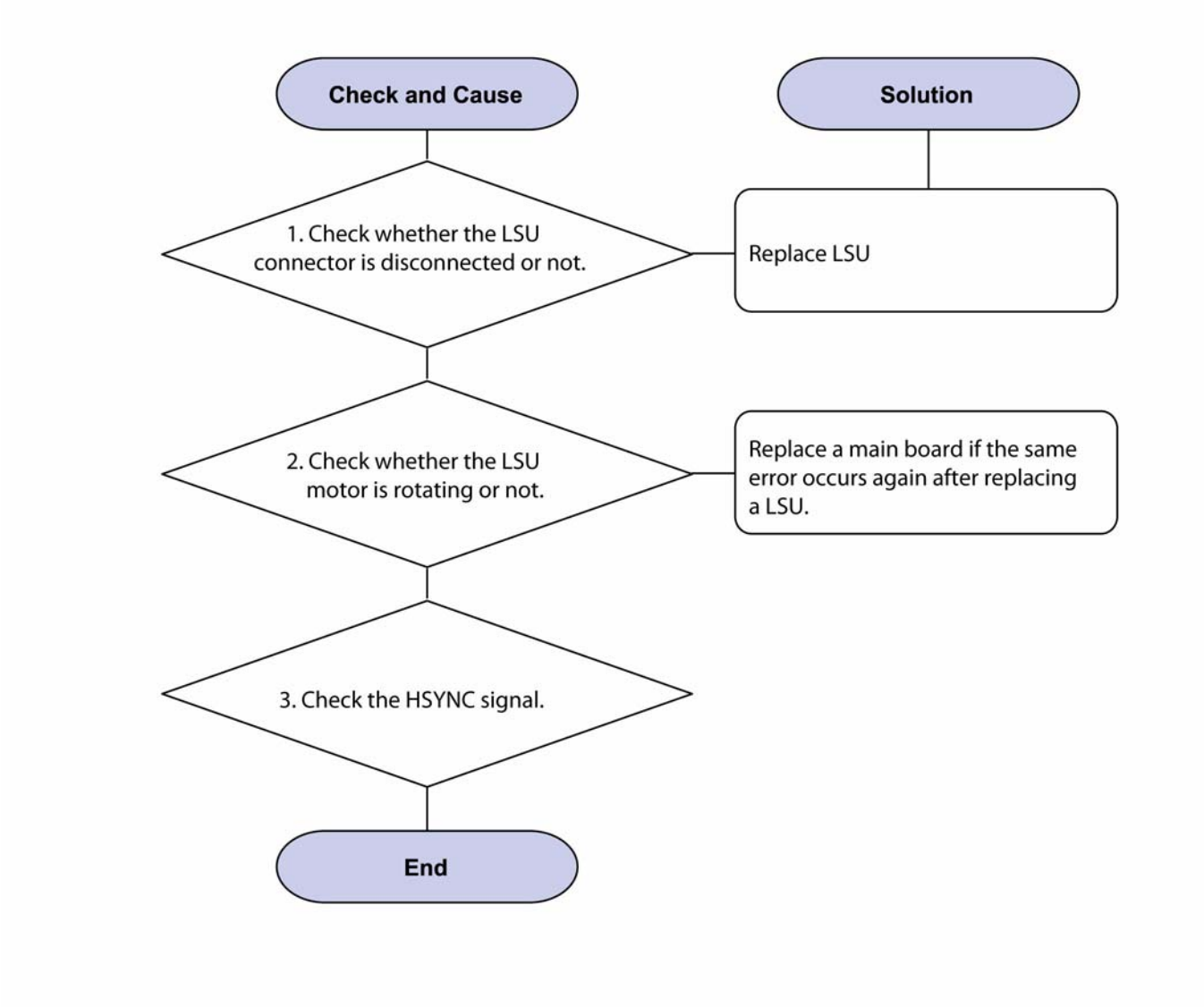
Check and Cause
Solution
1. Check whether the LSU connector is disconnected or not.
Replace LSU
2. Check whether the LSU motor is rotating or not.
Replace a main board if the same error occurs again after replacing a LSU.
3. Check the HSYNC signal.
End

Figure 1

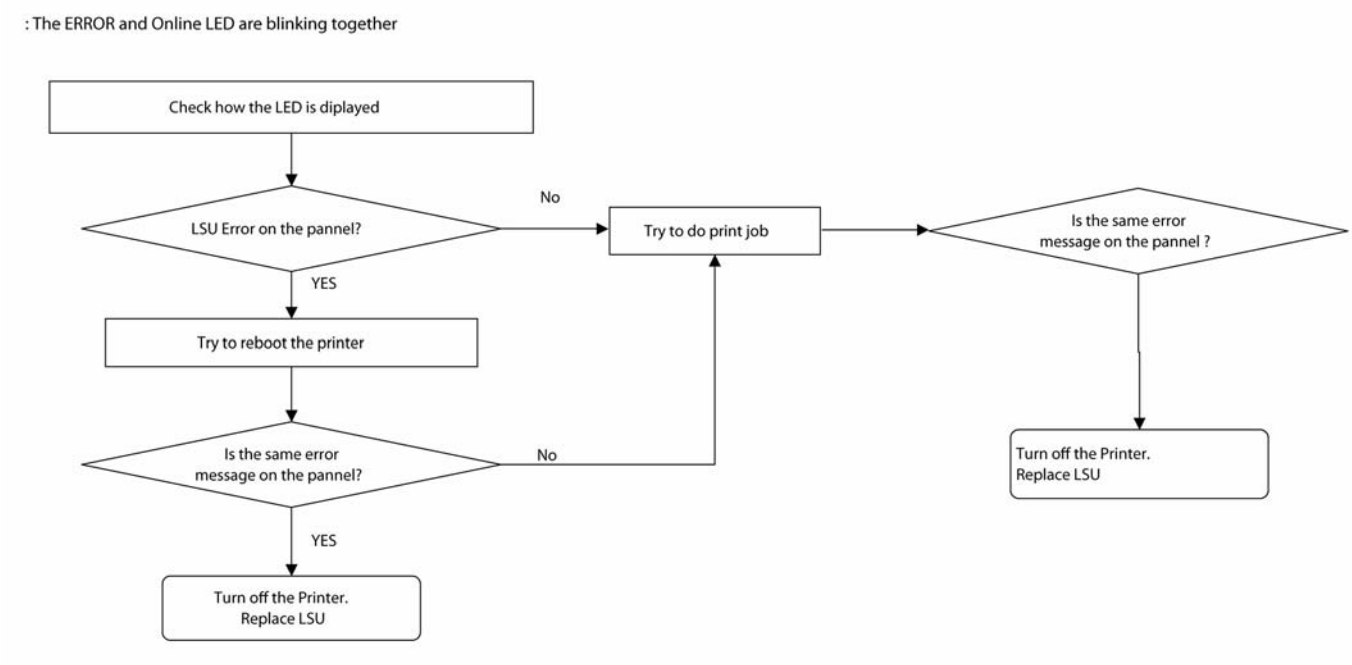
: The ERROR and Online LED are blinking together
Check how the LED is diplayed
LSU Error on the pannel?
No
Try to do print job
Is the same error message on the pannel ?
YES
Try to reboot the printer
Is the same error message on the pannel?
No
Turn off the Printer. Replace LSU
YES
Turn off the Printer. Replace LSU

Figure 2

RAP 15 Fuser Drive Gear Damage

Description

The motor breaks away from its place due to gear melting away.

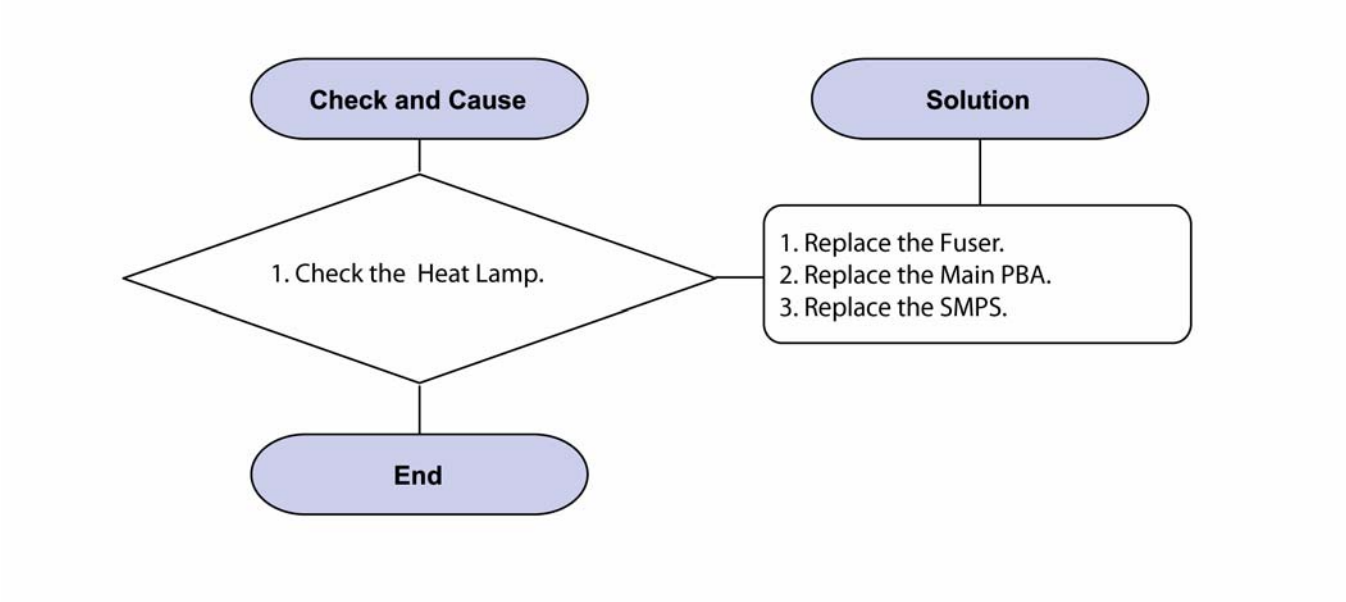

Figure 1

RAP 16 Paper Empty

Description

The paper lamp on the operator panel is on even when paper is loaded in the cassette.

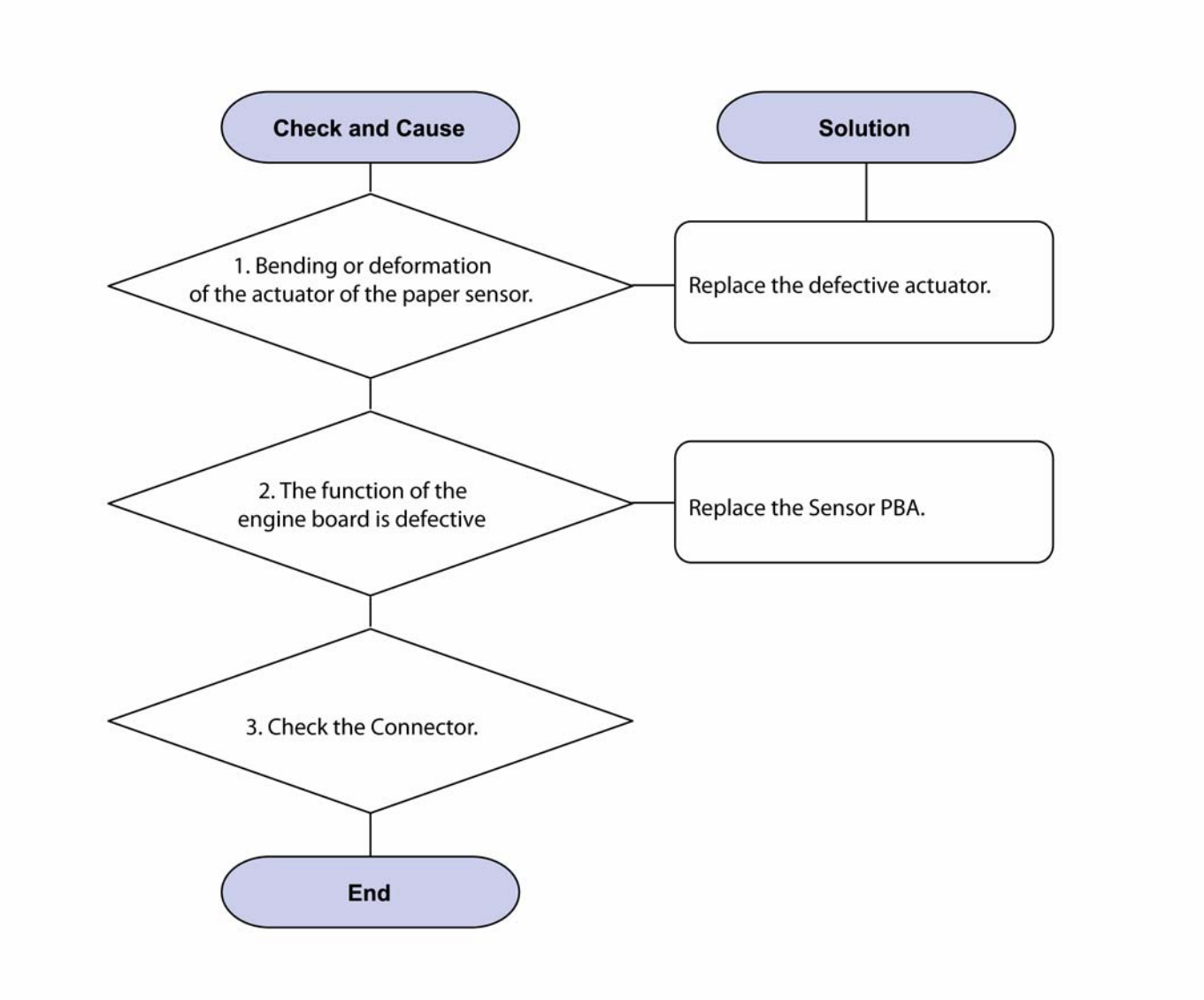
Check and Cause
Solution
1. Bending or deformation of the actuator of the paper sensor.
Replace the defective actuator.
2. The function of the engine board is defective
Replace the Sensor PBA.
3. Check the Connector.
End

Figure 1

RAP 17 Paper Empty Without Indication

Description

The paper lamp on the operator panel does not come on when the paper cassette is empty.

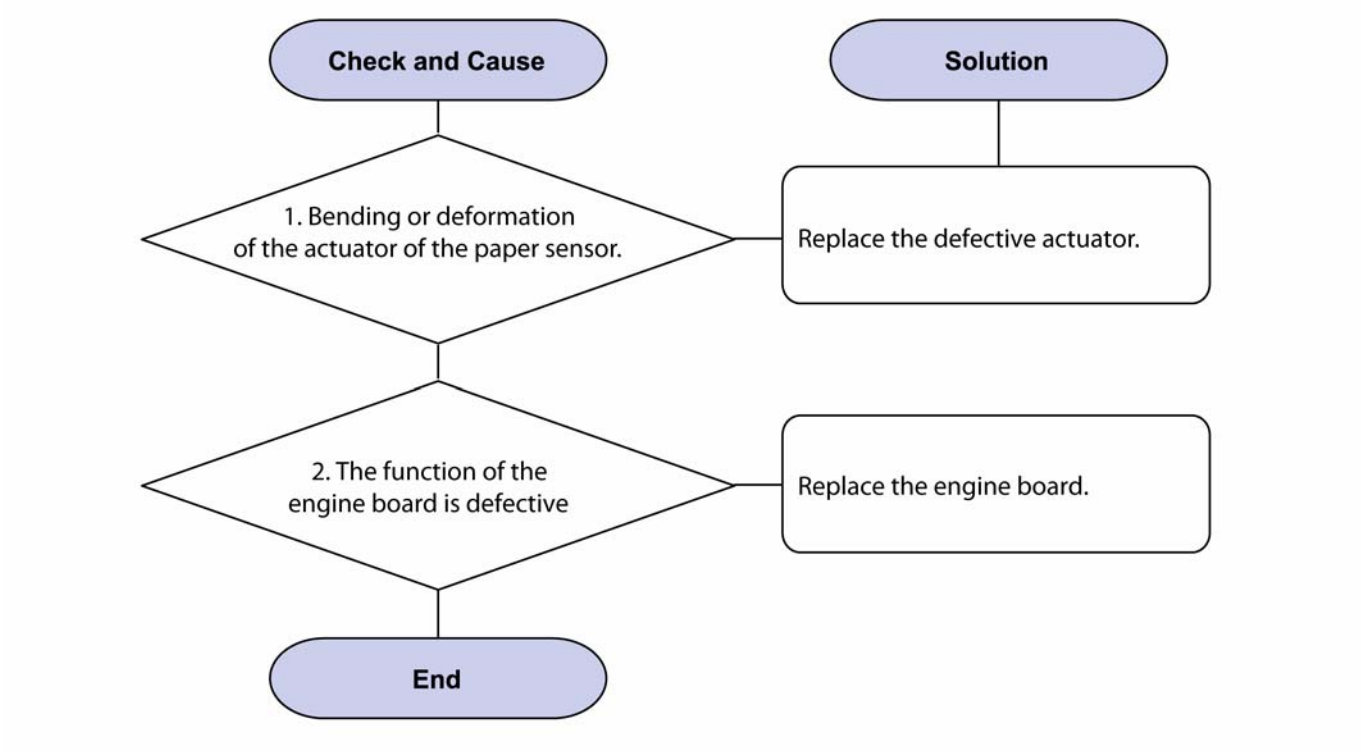
Check and Cause
Solution
1. Bending or deformation of the actuator of the paper sensor.
Replace the defective actuator.
2. The function of the engine board is defective
Replace the engine board.
End

Figure 1

RAP 18 Cover Open

Description

The ERROR lamp is on even when the print cover is closed.

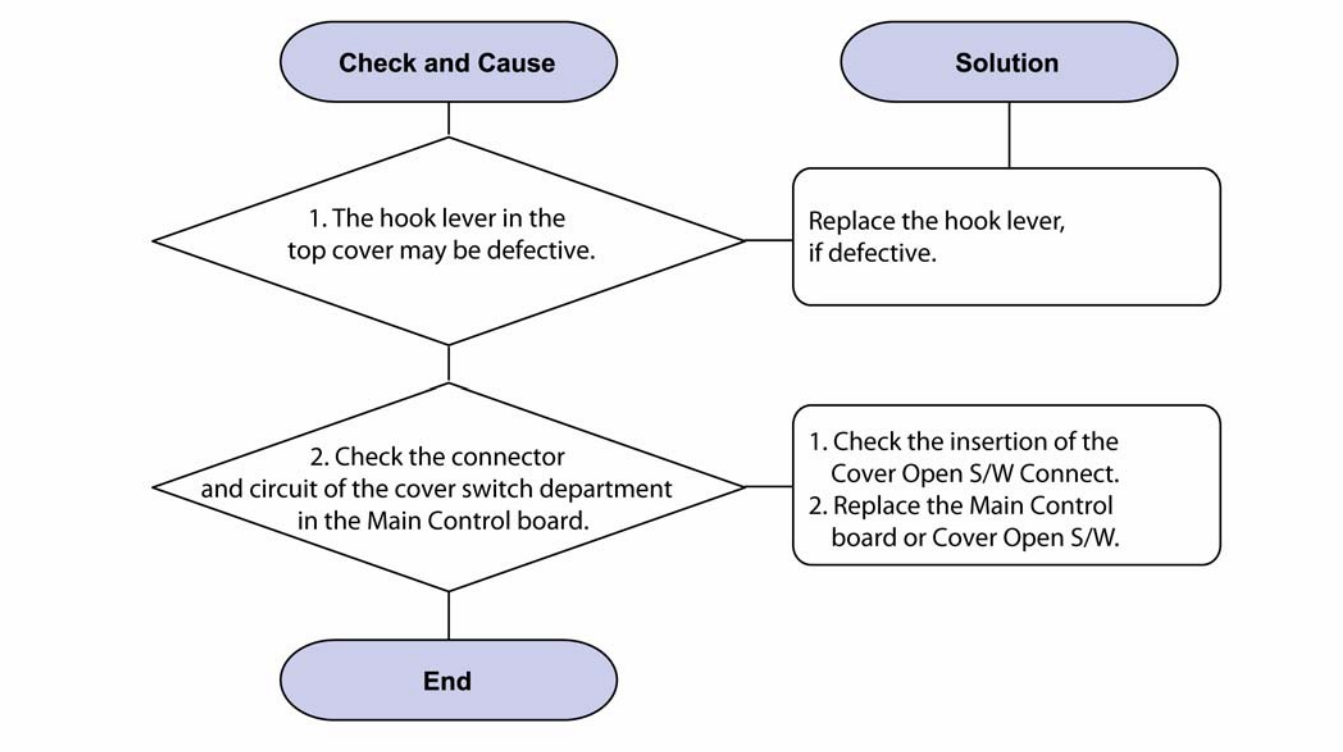
Check and Cause
Solution
1. The hook lever in the top cover may be defective.
Replace the hook lever, if defective.
2. Check the connector and circuit of the cover switch department in the Main Control board.
1. Check the insertion of the Cover Open S/W Connect.
2. Replace the Main Control board or Cover Open S/W.
End

Figure 1

RAP 19 No Error Message When the Cover is Open

Description

The ERROR message does not come on even when the printer cover is open.

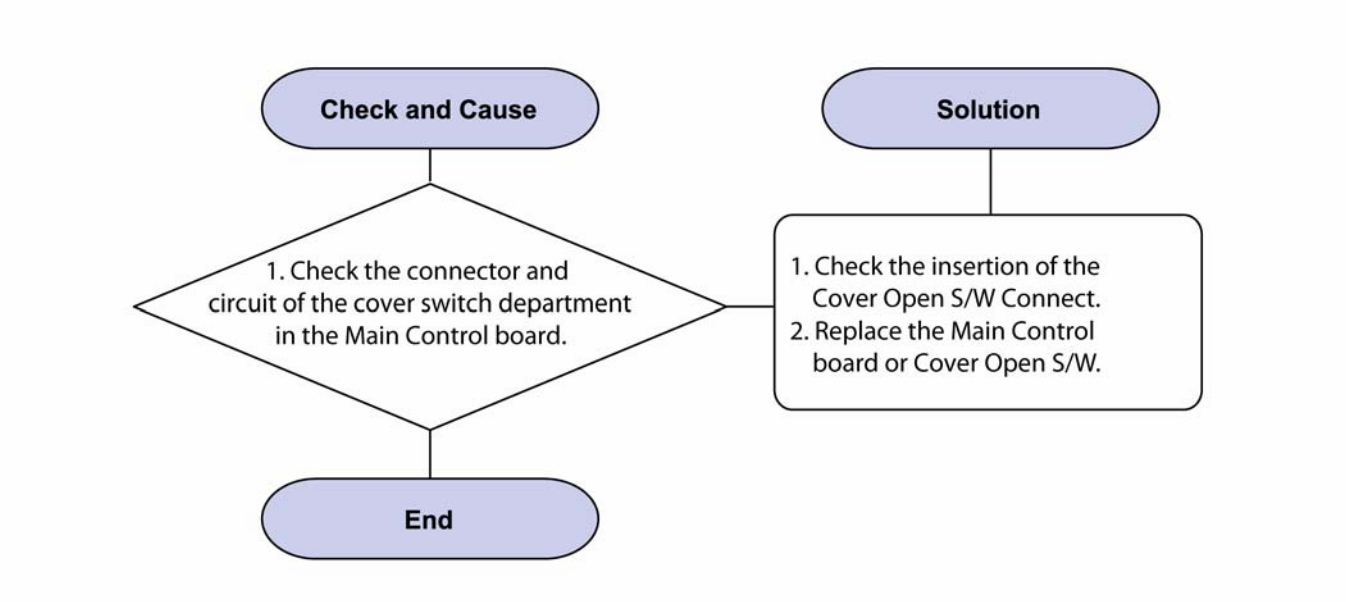
Check and Cause
Solution
1. Check the connector and circuit of the cover switch department in the Main Control board.
1. Check the insertion of the Cover Open S/W Connect.
2. Replace the Main Control board or Cover Open S/W.
End

Figure 1

RAP 20 Defective Motor Operation

Description

Main motor is not driving when printing and paper does not feed into the printer.

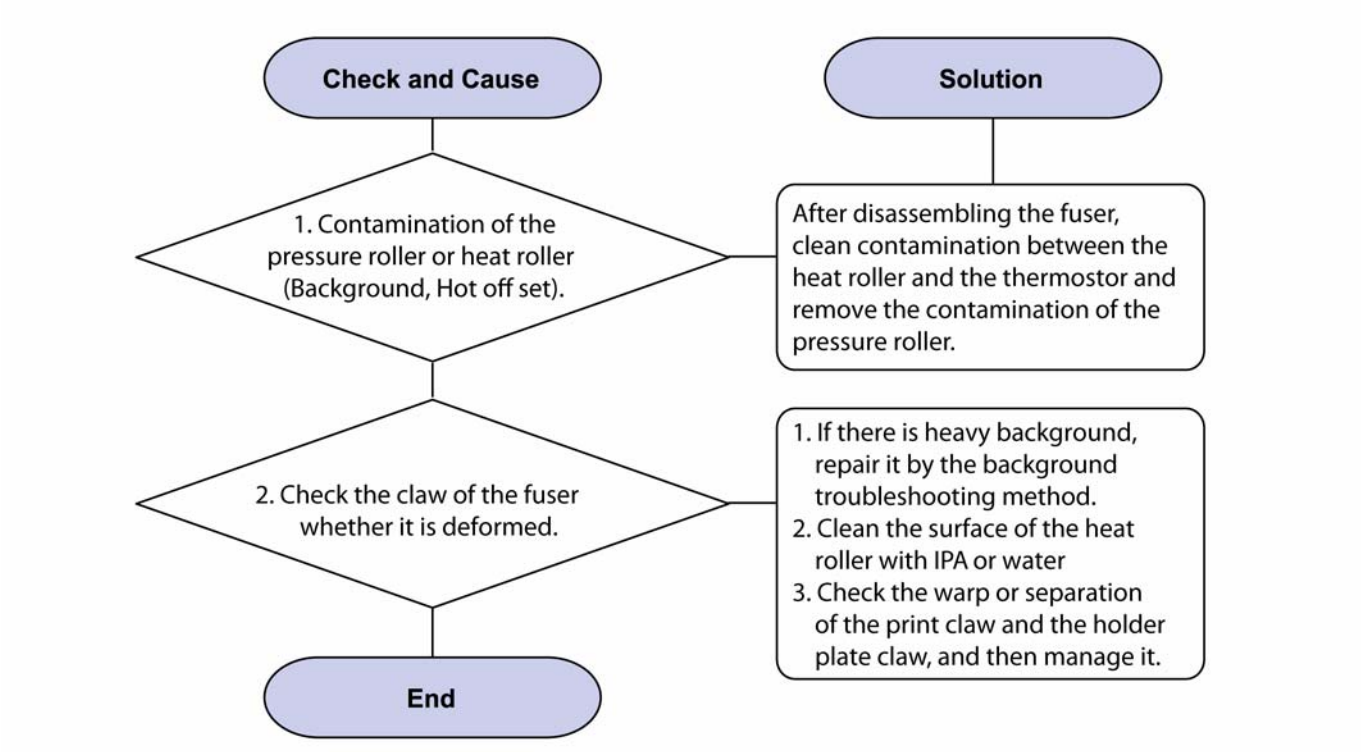
Check and Cause
Solution
1. Contamination of the pressure roller or heat roller (Background, Hot off set).
After disassembling the fuser, clean contamination between the heat roller and the thermostor and remove the contamination of the pressure roller.
2. Check the claw of the fuser whether it is deformed.
1. If there is heavy background, repair it by the background troubleshooting method.
2. Clean the surface of the heat roller with IPA or water
3. Check the warp or separation of the print claw and the holder plate claw, and then manage it.
End

Figure 1

RAP 21 No Power

Description

When system power is turned on, all lamps on the operator panel do not come on.

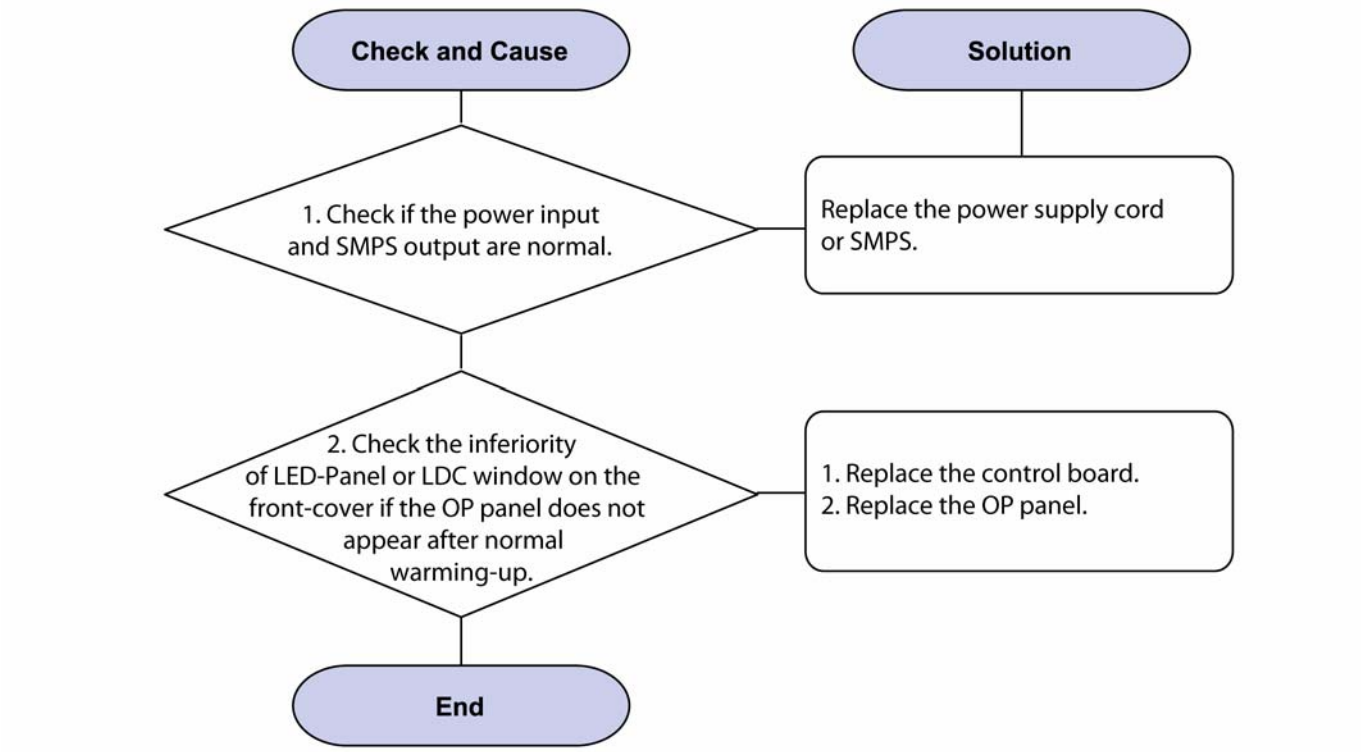
Check and Cause
Solution
1. Check if the power input and SMPS output are normal.
Replace the power supply cord or SMPS.
2. Check the inferiority of LED-Panel or LDC window on the front-cover if the OP panel does not appear after normal warming-up.
1. Replace the control board.
2. Replace the OP panel.
End

Figure 1

RAP 22 Printer Not Working (1)

Description

While Power turned on, the printer is not working in the printing mode.

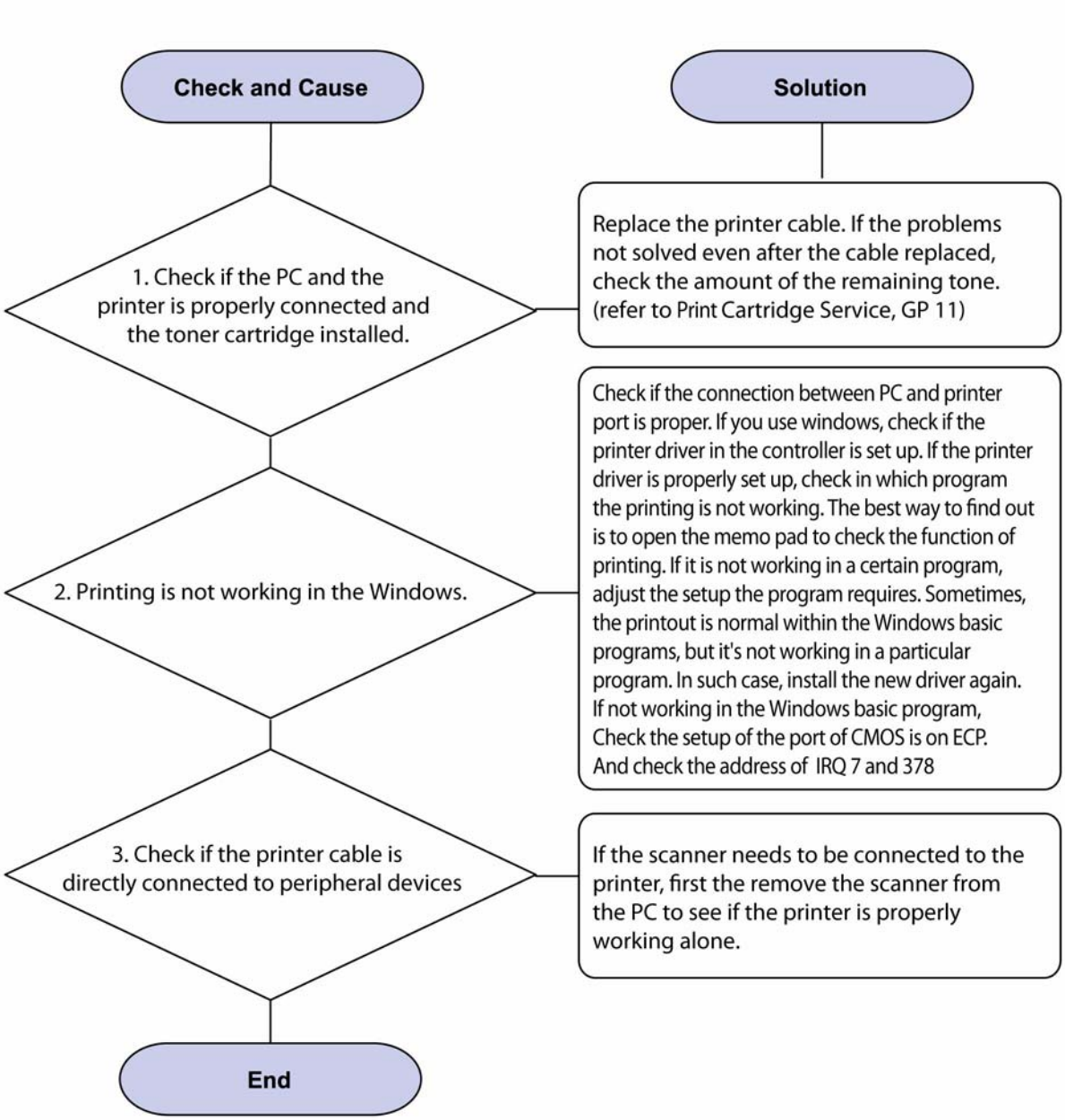
Check and Cause
Solution
1. Check if the PC and the printer is properly connected and the toner cartridge installed.
Replace the printer cable. If the problems not solved even after the cable replaced, check the amount of the remaining tone. (refer to Print Cartridge Service, GP 11)
2. Printing is not working in the Windows.
Check if the connection between PC and printer port is proper. If you use windows, check if the printer driver in the controller is set up. If the printer driver is properly set up, check in which program the printing is not working. The best way to find out is to open the memo pad to check the function of printing. If it is not working in a certain program, adjust the setup the program requires. Sometimes, the printout is normal within the Windows basic programs, but it's not working in a particular program. In such case, install the new driver again. If not working in the Windows basic program, Check the setup of the port of CMOS is on ECP. And check the address of IRQ 7 and 378
3. Check if the printer cable is directly connected to peripheral devices
If the scanner needs to be connected to the printer, first the remove the scanner from the PC to see if the printer is properly working alone.
End

Figure 1

RAP 23 Printer Not Working (2)

Description

After receiving the printing order, no response at all or the low speed of printing occurs due to wrong setup of the environment rather than malfunction of the printer itself.

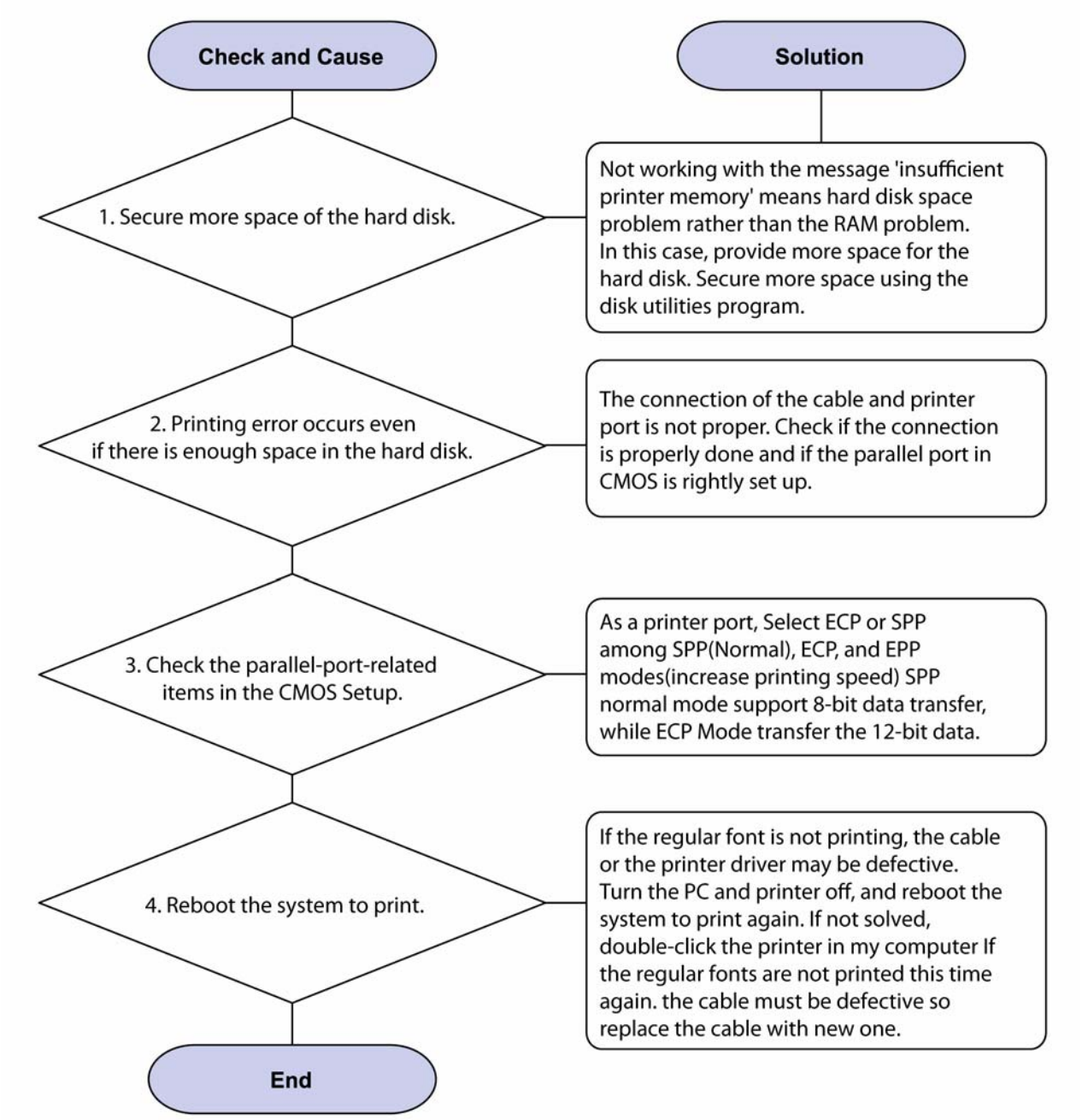
Check and Cause
Solution
1. Secure more space of the hard disk.
Not working with the message 'insufficient printer memory' means hard disk space problem rather than the RAM problem. In this case, provide more space for the hard disk. Secure more space using the disk utilities program.
2. Printing error occurs even if there is enough space in the hard disk.
The connection of the cable and printer port is not proper. Check if the connection is properly done and if the parallel port in CMOS is rightly set up.
3. Check the parallel-port-related items in the CMOS Setup.
As a printer port, Select ECP or SPP among SPP(Normal), ECP, and EPP modes(increase printing speed) SPP normal mode support 8-bit data transfer, while ECP Mode transfer the 12-bit data.
4. Reboot the system to print.
If the regular font is not printing, the cable or the printer driver may be defective. Turn the PC and printer off, and reboot the system to print again. If not solved, double-click the printer in my computer If the regular fonts are not printed this time again. the cable must be defective so replace the cable with new one.
End

Figure 1

RAP 24 Abnormal Printing

Description

The printer is not working properly even when the cable has no problem (even after the cable is replaced).

If the printer won't work at all or the strange fonts are repeated, the printer driver may be defective or setup in the CMOS Setup.

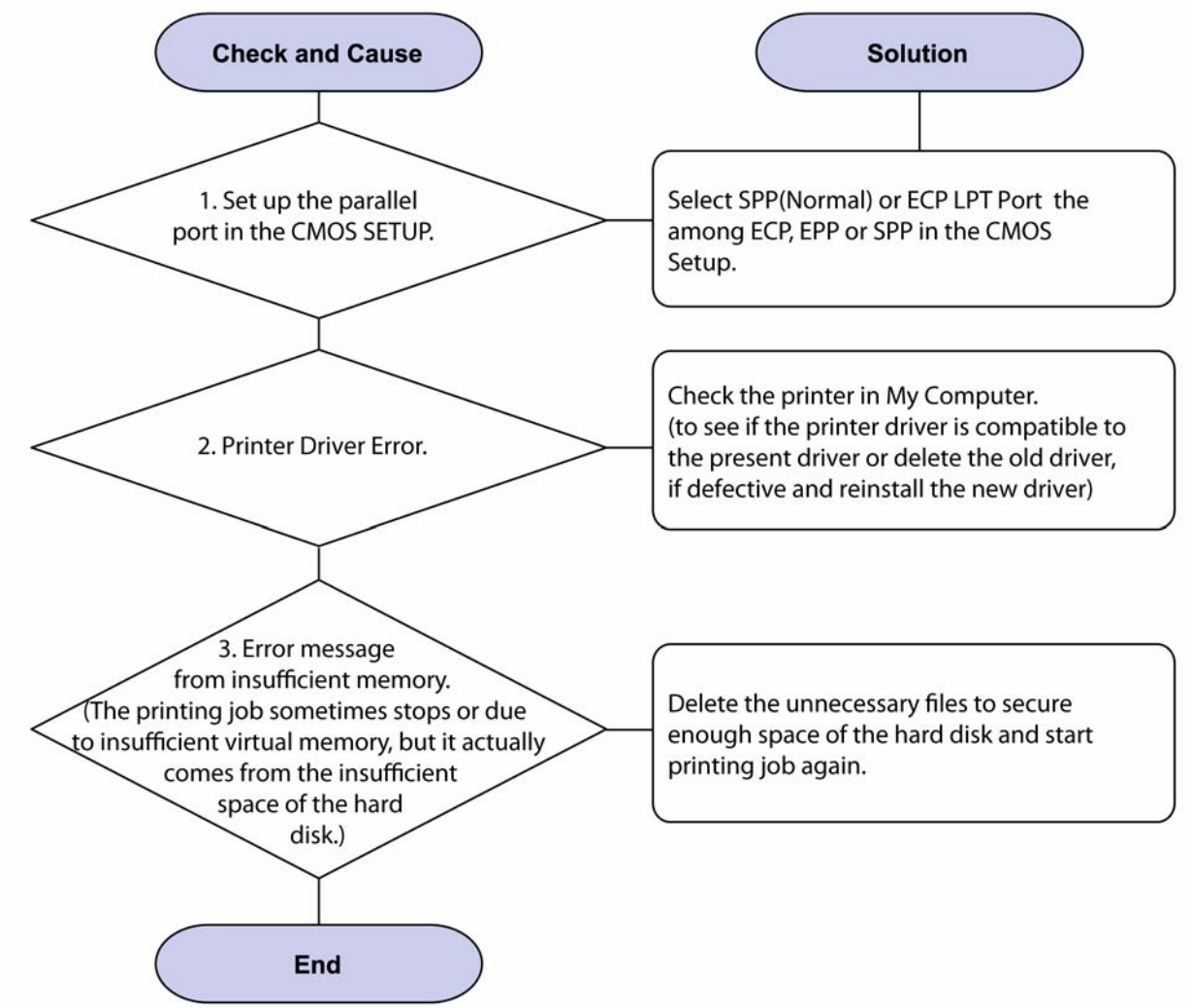
Check and Cause
Solution
1. Set up the parallel port in the CMOS SETUP.
Select SPP(Normal) or ECP LPT Port the among ECP, EPP or SPP in the CMOS Setup.
2. Printer Driver Error.
Check the printer in My Computer. (to see if the printer driver is compatible to the present driver or delete the old driver, if defective and reinstall the new driver)
3. Error message from insufficient memory. (The printing job sometimes stops or due to insufficient virtual memory, but it actually comes from the insufficient space of the hard disk.)
Delete the unnecessary files to secure enough space of the hard disk and start printing job again.
End

Figure 1

RAP 25 SPOOL Error

Description

To spool which stands for "simultaneous peripheral operations online" a computer document or task list (or "job") is to read it and store it, usually on a hard disk or larger storage medium so that it can be printed or otherwise processed at a more convenient time (for example, when a printer is finished printing its current document).

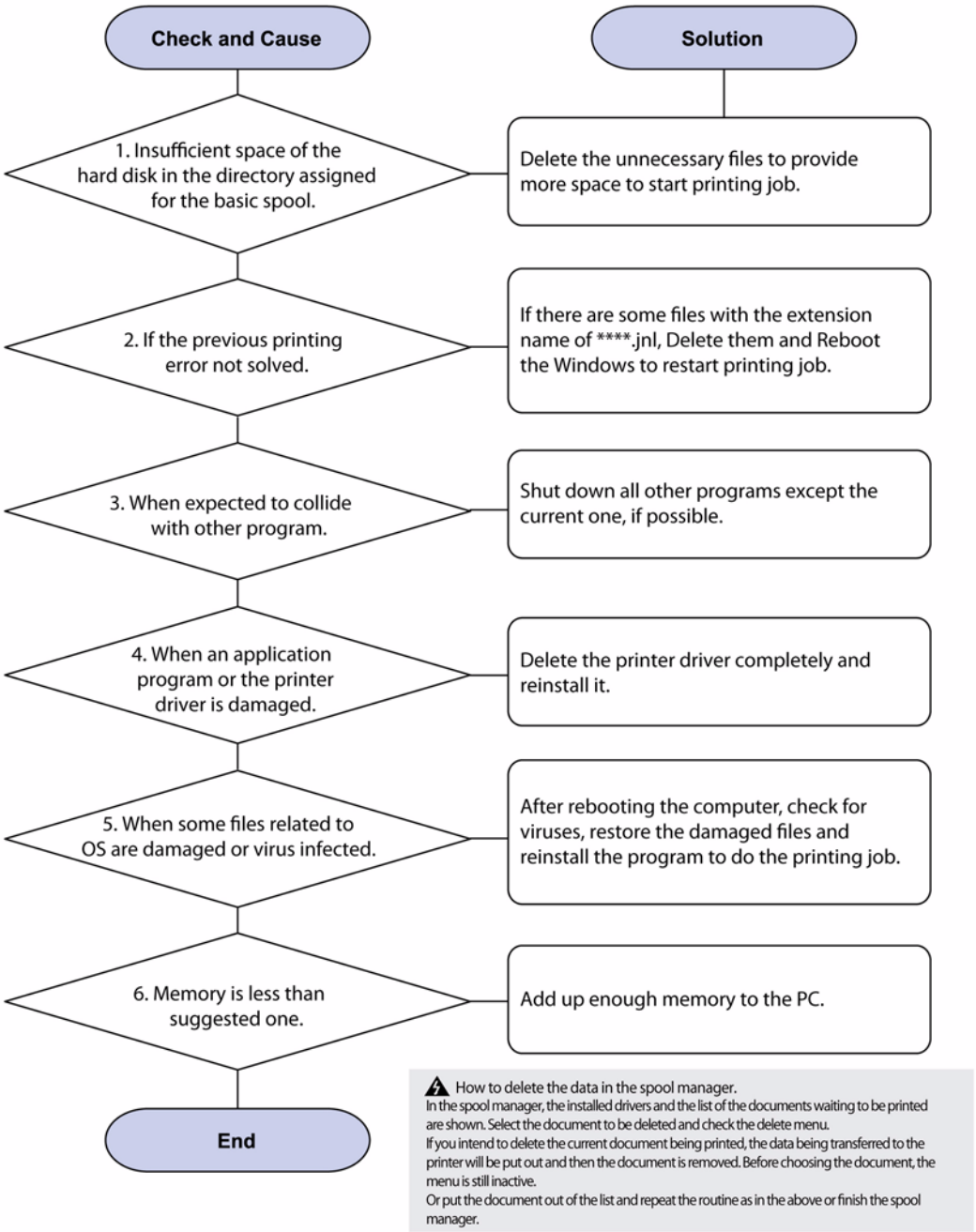
Check and Cause
Solution
1. Insufficient space of the hard disk in the directory assigned for the basic spool.
Delete the unnecessary files to provide more space to start printing job.
2. If the previous printing error not solved.
If there are some files with the extension name of ****.jnl, Delete them and Reboot the Windows to restart printing job.
3. When expected to collide with other program.
Shut down all other programs except the current one, if possible.
4. When an application program or the printer driver is damaged.
Delete the printer driver completely and reinstall it.
5. When some files related to OS are damaged or virus infected.
After rebooting the computer, check for viruses, restore the damaged files and reinstall the program to do the printing job.
6. Memory is less than suggested one.
Add up enough memory to the PC.
End
How to delete the data in the spool manager.
In the spool manager, the installed drivers and the list of the documents waiting to be printed are shown. Select the document to be deleted and check the delete menu.
If you intend to delete the current document being printed, the data being transferred to the printer will be put out and then the document is removed. Before choosing the document, the menu is still inactive.
Or put the document out of the list and repeat the routine as in the above or finish the spool manager.

Figure 1

RAP 26 Multi-Feed Error

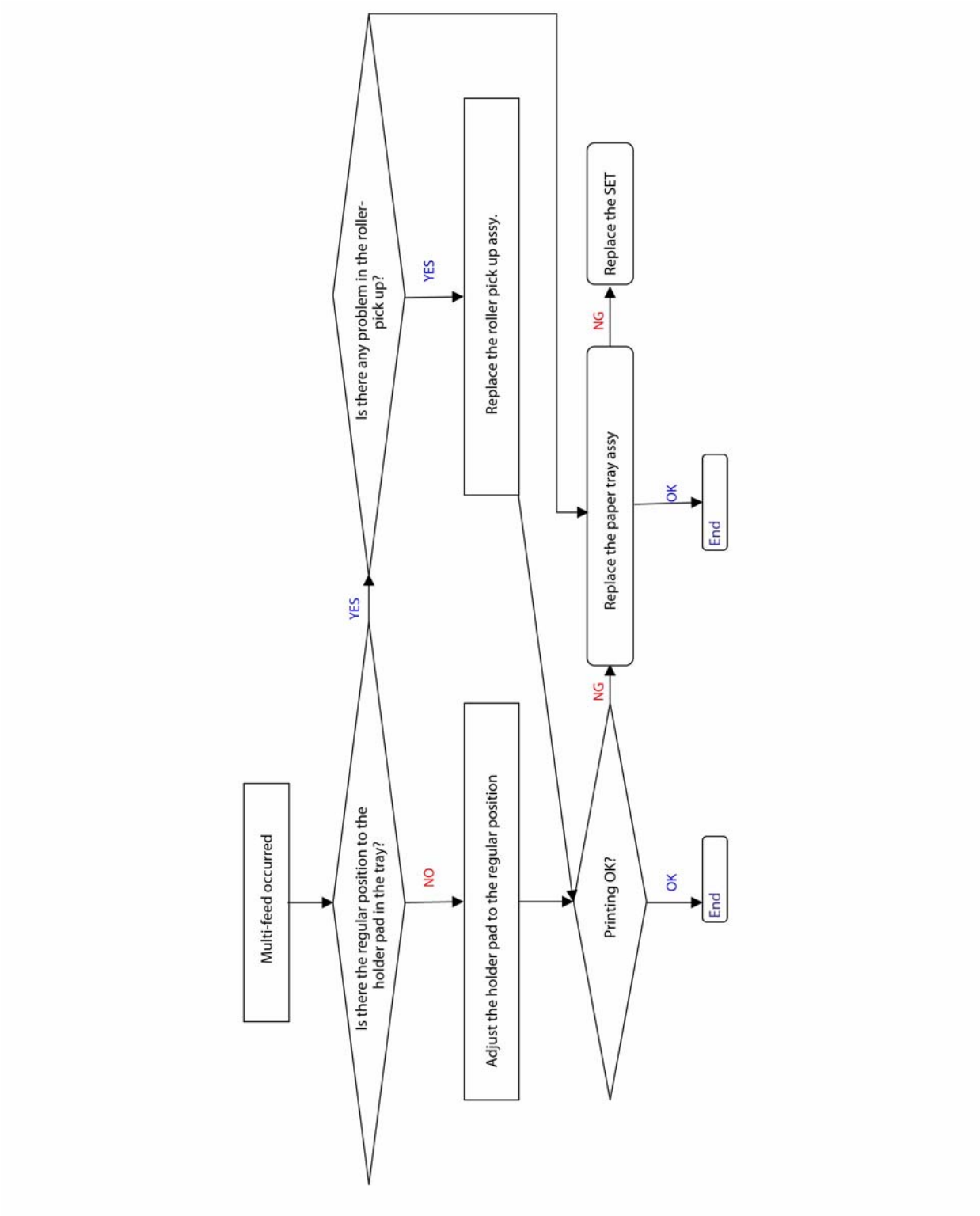

Figure 1

RAP 27 No Paper/Add Paper Error

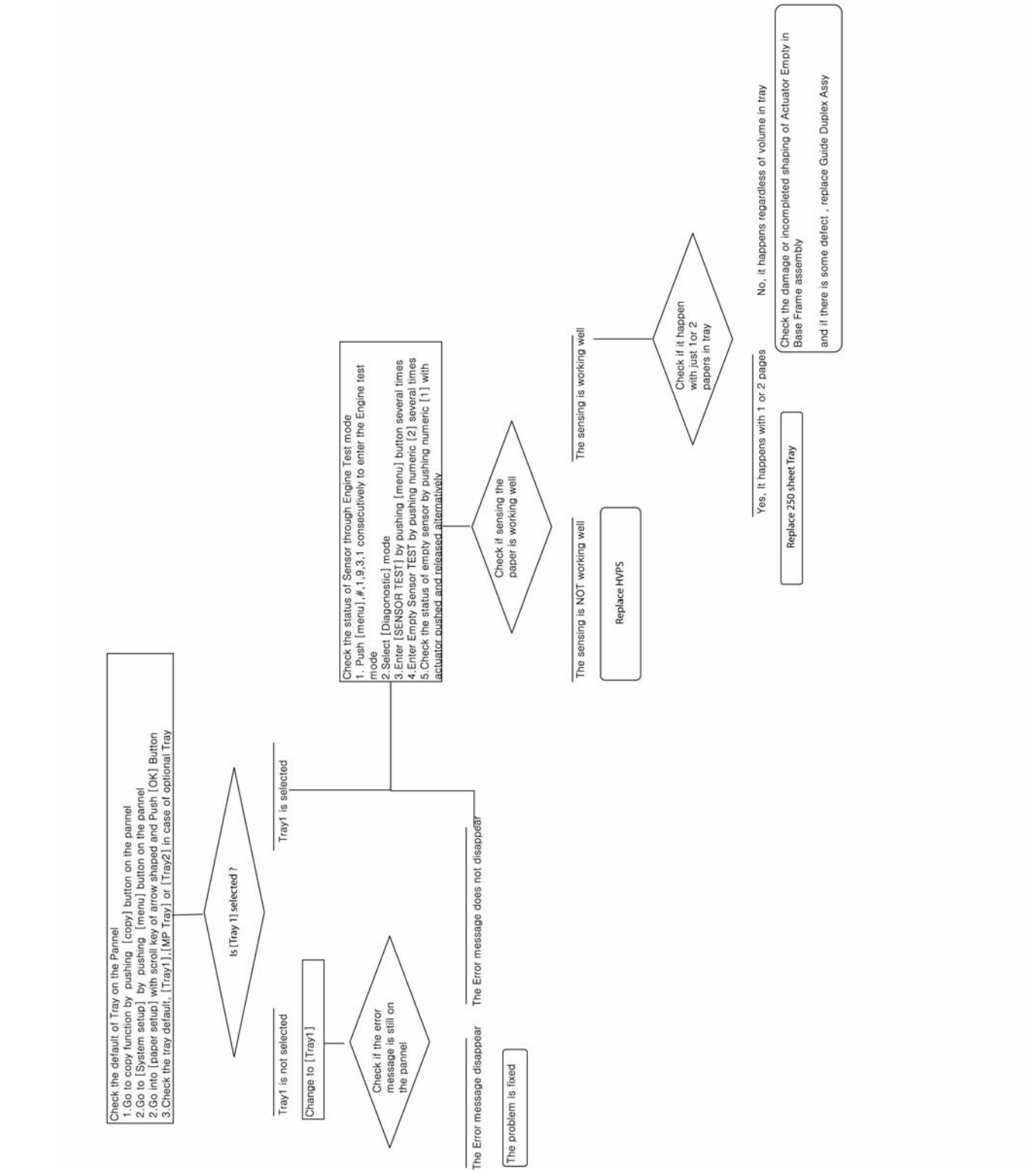
Check the default of Tray on the Pannel
1.Go to copy function by pushing [copy] button on the pannel
2.Go to [System setup] by pushing [menu] button on the pannel
2.Go into [paper setup] with scroll key of arrow shaped and Push [OK] Button
3.Check the tray default. [Tray1], [MP Tray] or [Tray2] in case of optional Tray
Is [Tray 1] selected ?
Tray1 is not selected
Change to [Tray1]
Check if the error message is still on the pannel
The Error message disappear
The problem is fixed
Tray1 is selected
The Error message does not disappear
Check the status of Sensor through Engine Test mode
1. Push [menu],#,1,9,3,1 consecutively to enter the Engine test mode
2.Select [Diagonostic] mode
3.Enter [SENSOR TEST] by pushing [menu] button several times
4.Enter Empty Sensor TEST by pushing numeric [2] several times
5.Check the status of empty sensor by pushing numeric [1] with actuator pushed and released alternatively
Check if sensing the paper is working well
The sensing is NOT working well
Replace HVPS
The sensing is working well
Check if it happen with just 1or 2 papers in tray
Yes, It happens with 1 or 2 pages
Replace 250 sheet Tray
No, it happens regardless of volume in tray
Check the damage or incompleted shaping of Actuator Empty in Base Frame assembly
and if there is some defect , replace Guide Duplex Assy

Figure 1

RAP 28 Open Cover Error

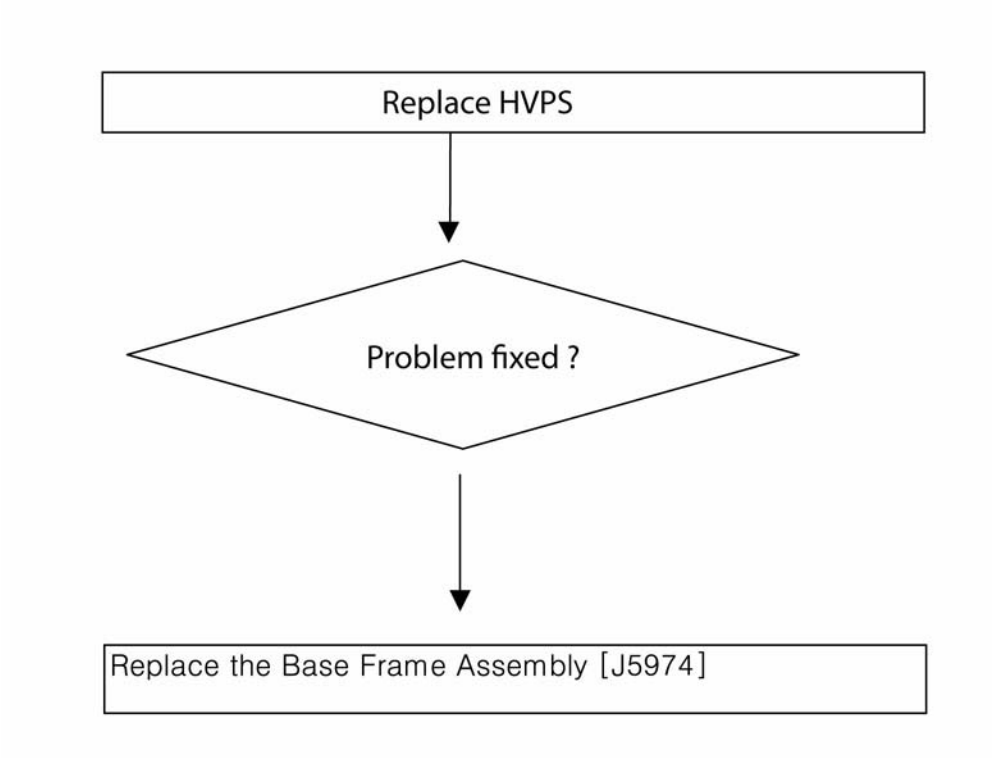

Figure 1

RAP 29 Fuser Door Open

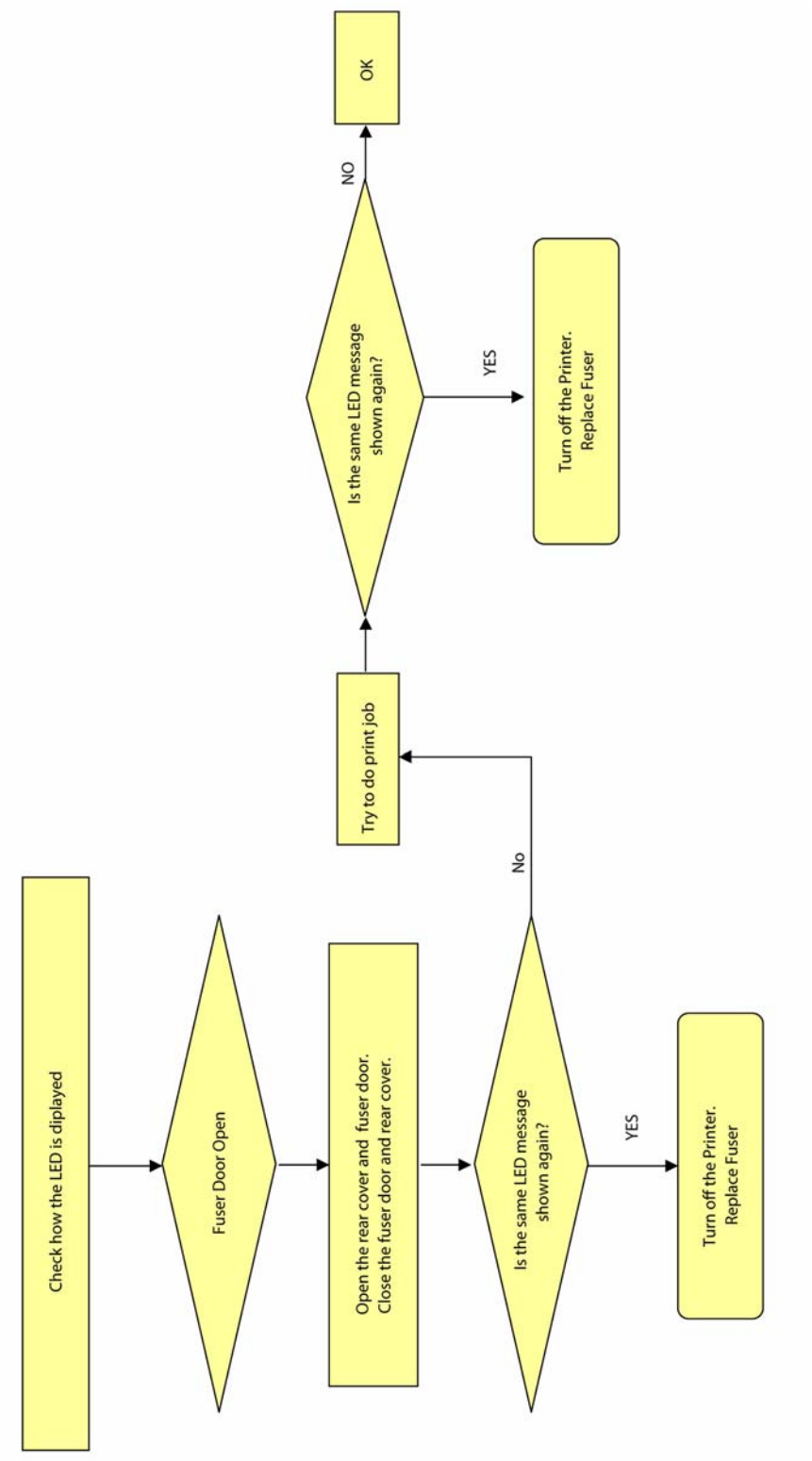
OK
NO
Is the same LED message shown again?
YES
Turn off the Printer. Replace Fuser
Try to do print job
No
Check how the LED is diplayed
Fuser Door Open
Open the rear cover and fuser door. Close the fuser door and rear cover.
Is the same LED message shown again?
YES
Turn off the Printer. Replace Fuser

Figure 1

RAP 30 Audible Noise

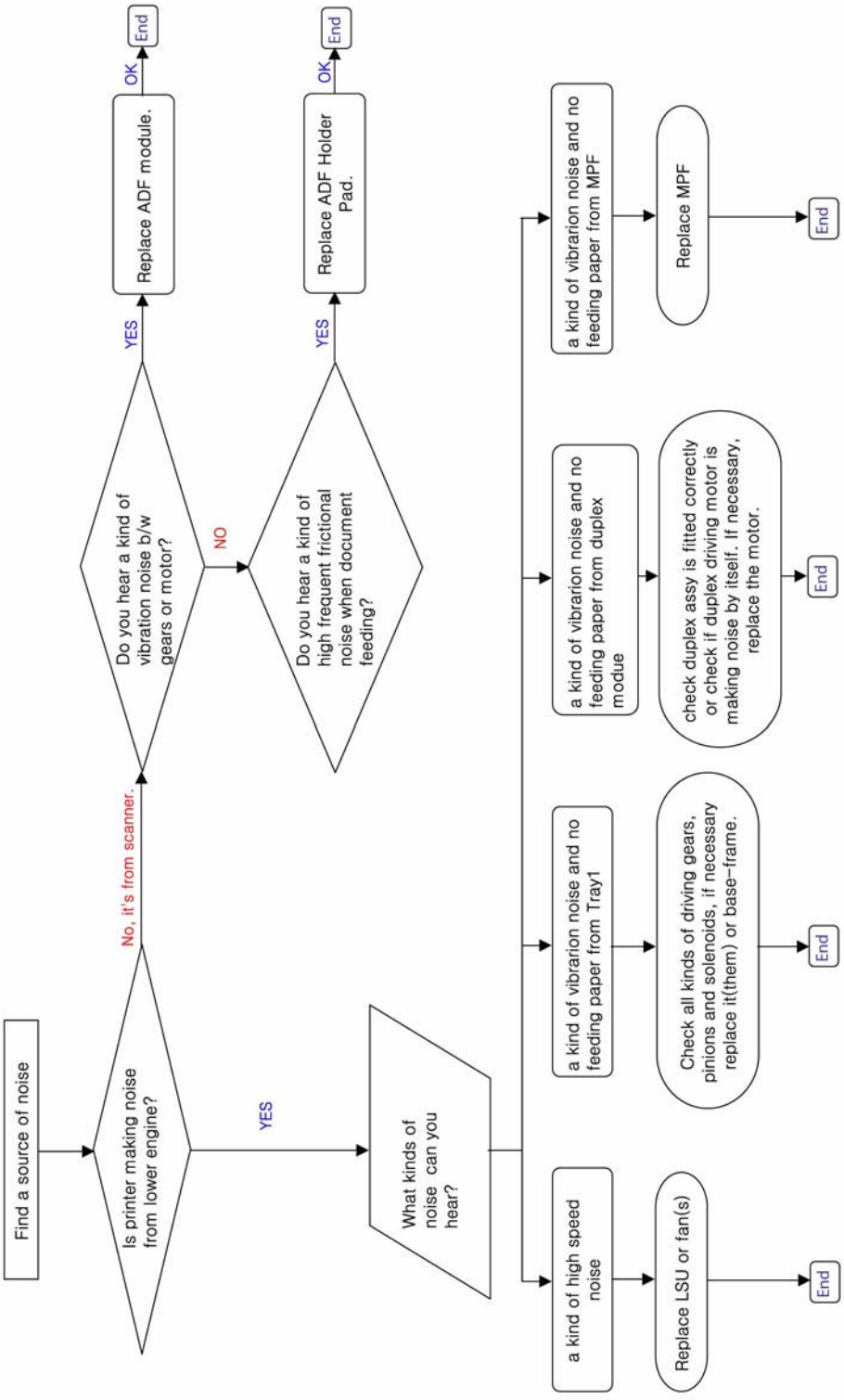
Find a source of noise
Is printer making noise from lower engine?
No, it's from scanner.
YES
Do you hear a kind of vibration noise b/w gears or motor?
YES
Replace ADF module.
OK
End
NO
Do you hear a kind of high frequent frictional noise when document feeding?
YES
Replace ADF Holder Pad.
OK
End
What kinds of noise can you hear?
a kind of high speed noise
Replace LSU or fan(s)
End
a kind of vibrarion noise and no feeding paper from Tray1
Check all kinds of driving gears, pinions and solenoids, if necessary replace it(them) or base-frame.
End
a kind of vibrarion noise and no feeding paper from duplex modue
check duplex assy is fitted correctly or check if duplex driving motor is making noise by itself. If necessary, replace the motor.
End
a kind of vibrarion noise and no feeding paper from MPF
Replace MPF
End

Figure 1

RAP 31 Scan Lock Error

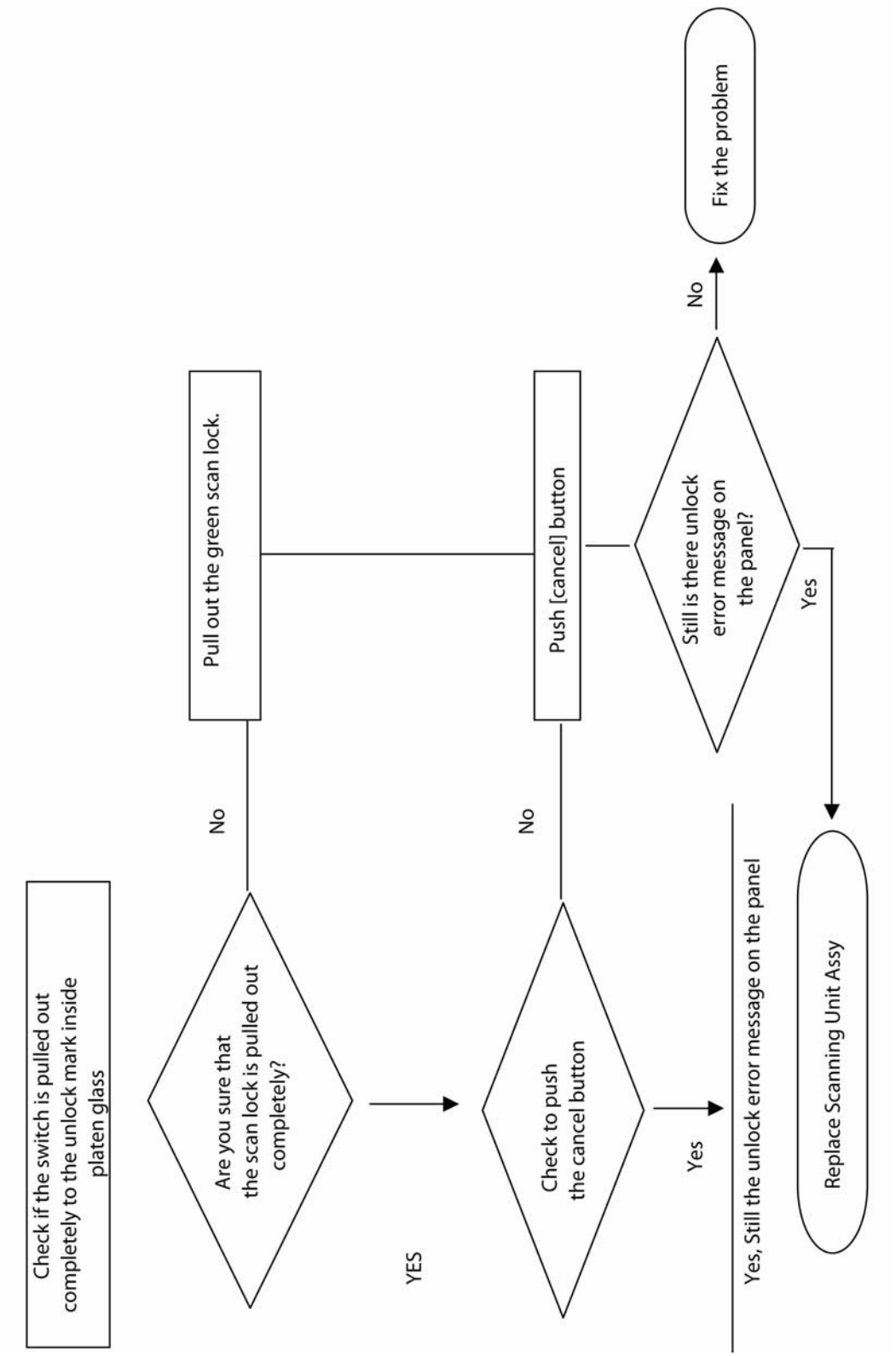
Check if the switch is pulled out completely to the unlock mark inside platen glass
Are you sure that the scan lock is pulled out completely?
No
YES
Pull out the green scan lock.
Check to push the cancel button
No
Yes
Push [cancel] button
Still is there unlock error message on the panel?
No
Yes
Fix the problem
Yes, Still the unlock error message on the panel
Replace Scanning Unit Assy

Figure 1

3 Image Quality

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IQ 1 Test Patterns

This product has the several sample patterns for maintenance. With the sample patterns, check the existence of the abnormality. The patterns help to regularly maintain the product.

Printing a Demo Page

Print a demo page or a configuration sheet to make sure that the printer is operating correctly. Press the Menu button to select (Information -> Demo Page).

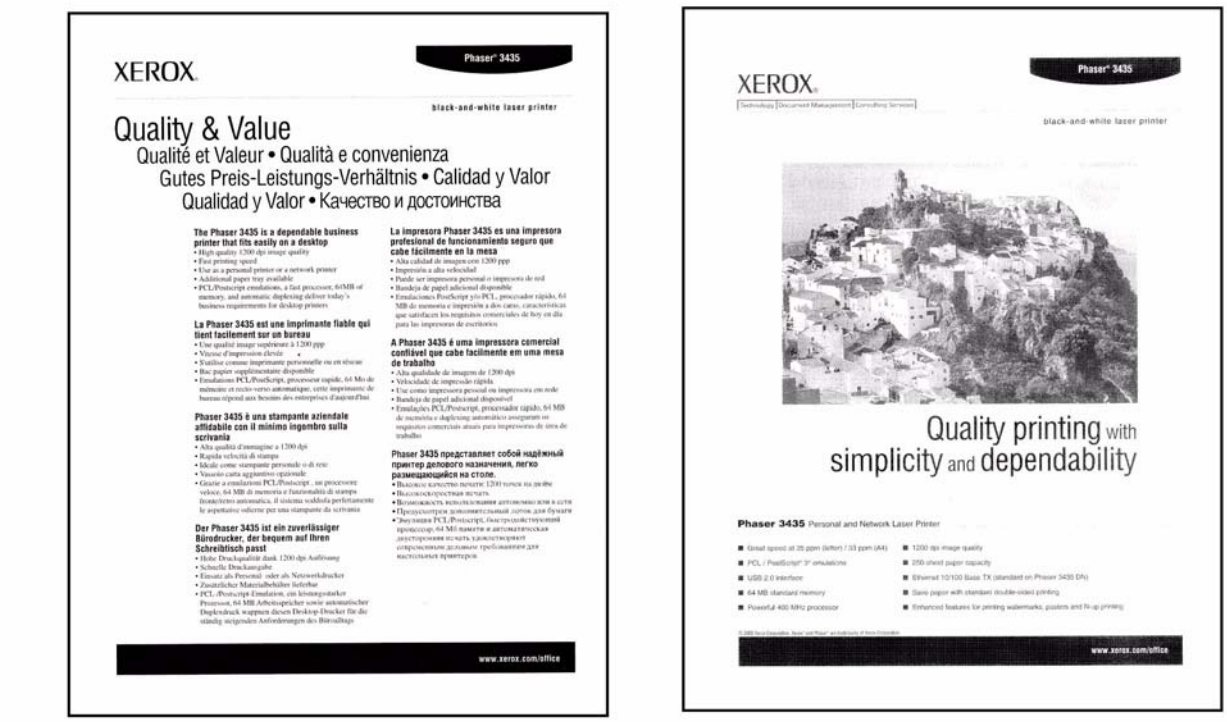


Figure 1

Sample Tests Patterns

The sample patterns shown below are the standard test patterns used in the factory.The life of the print cartridge, developer cartridge and printing speed are measured with the pattern shown below (5%). The A4 ISO 19752 standard pattern samples are reproduced reduced to 70% of the actual A4size.

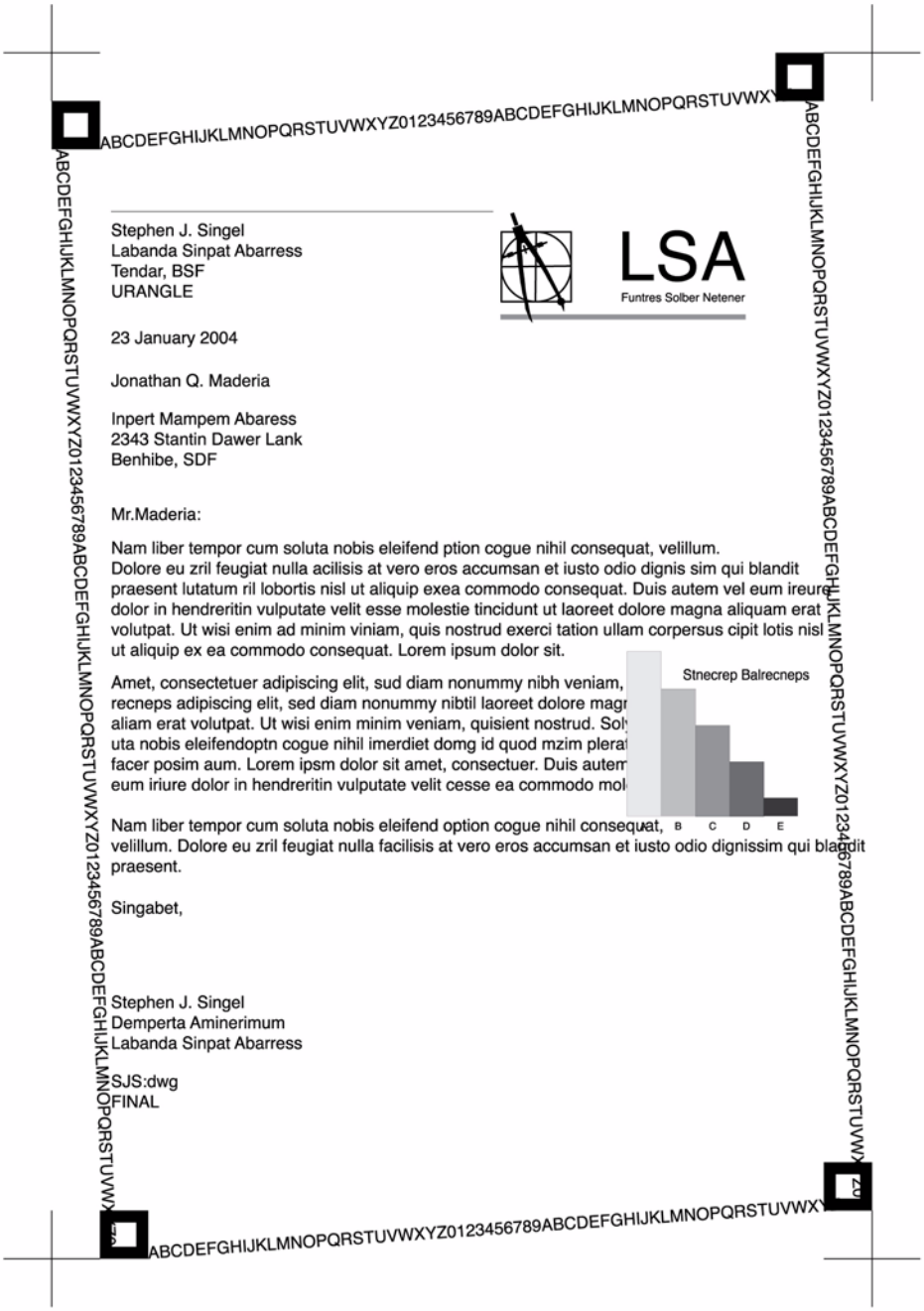

ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789ABCDEFGHIJKLMNOPQRSTUVWXY
Stephen J. Singel
Labanda Sinpat Abarress
Tendar, BSF
URANGLE
LSA
Funtres Solber Netener
23 January 2004
Jonathan Q. Maderia
Inpert Mampem Abaress
2343 Stantin Dawer Lank
Benhibe, SDF
Mr.Maderia:
Nam liber tempor cum soluta nobis eleifend ption cogue nihil consequat, velillum.
Dolore eu zril feugiat nulla acilisis at vero eros accumsan et iusto odio dignis sim qui blandit
praesent lutatum ril lobortis nisl ut aliquip exea commodo consequat. Duis autem vel eum ireure
dolor in hendreritin vulputate velit esse molestie tincidunt ut laoreet dolore magna aliquam erat
volutpat. Ut wisi enim ad minim viniam, quis nostrud exerci tation ullam corpersus cipit lotis nisl
ut aliquip ex ea commodo consequat. Lorem ipsum dolor sit.
Stnecrep Balrecneps
A B C D E
Amet, consectetuer adipiscing elit, sud diam nonummy nibh veniam,
recneps adipiscing elit, sed diam nonummy nibtil laoreet dolore magr
aliam erat volutpat. Ut wisi enim minim veniam, quisient nostrud. Sol
uta nobis eleifendoptn cogue nihil imerdiet domg id quod mzim plerat
facer posim aum. Lorem ipsm dolor sit amet, consectuer. Duis autem
eum iriure dolor in hendreritin vulputate velit cesse ea commodo mol
Nam liber tempor cum soluta nobis eleifend option cogue nihil consequat,
velillum. Dolore eu zril feugiat nulla facilisis at vero eros accumsan et iusto odio dignissim qui blandit
praesent.
Singabet,
Stephen J. Singel
Demperta Aminerimum
Labanda Sinpat Abarress
SJS:dwg
FINAL
ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789ABCDEFGHIJKLMNOPQRSTUVWXY

Figure 2

IQ 2 Abnormal Image Printing and Defective Roller

If abnormal image prints periodically, check the parts shown below.

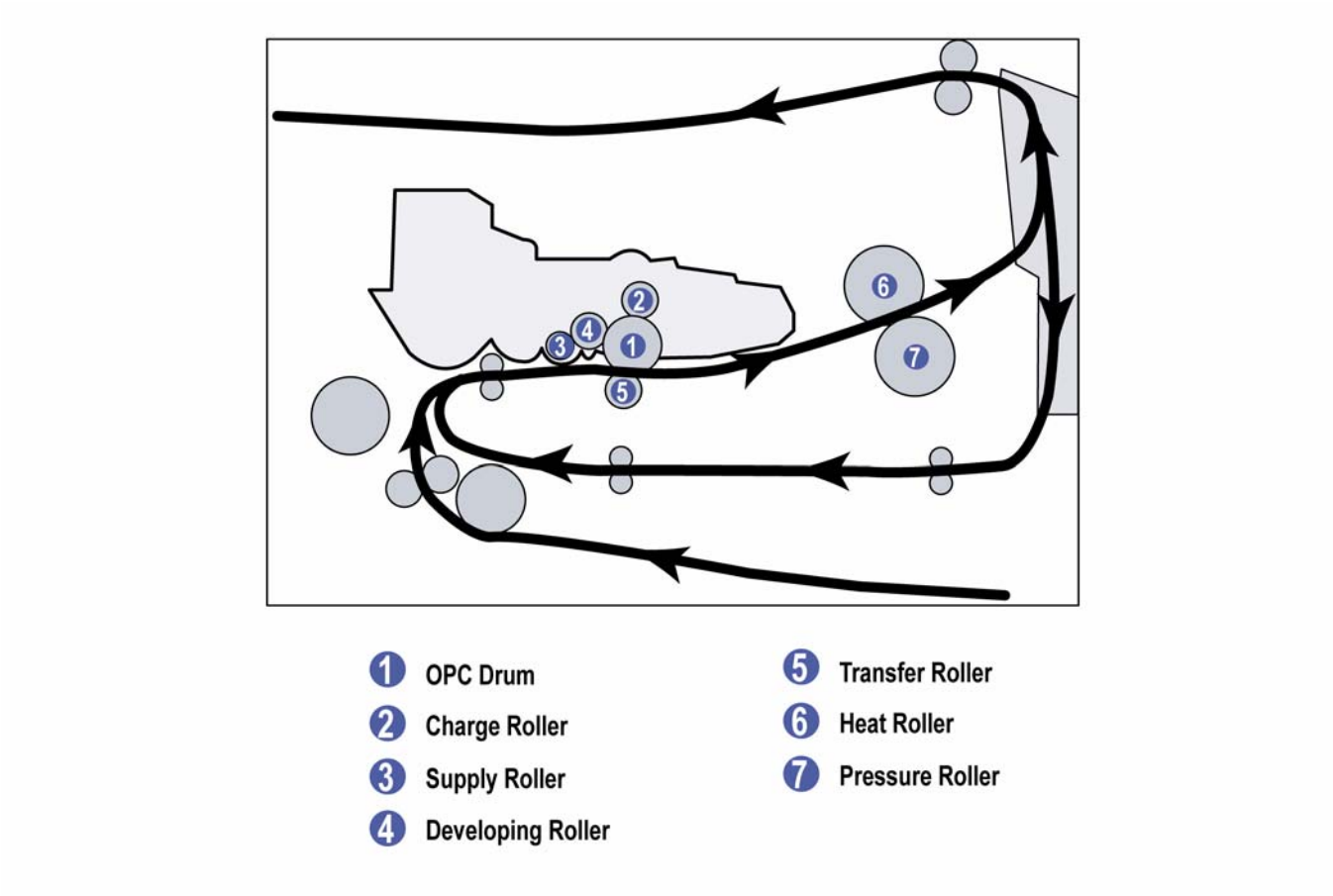


Figure 1

No	Roller	Abnormal image period	Kind of abnormal image
1	OPC Drum	75.5mm	White spot, Block spot
2	Charge Roller	37.7mm	Black spot
3	Supply Roller	44.9mm	Horizontal density band
4	Develop Roller	35.2mm	Horizontal density band
5	Transfer Roller	47.1mm	Black side contamination/transfer fault
6	Heat Roller	77.8mm	Black spot and fuser ghost
7	Pressure Roller	62.8mm / 50.24mm	Black side contamination

IQ 3 Vertical Black Line and Band

Description

1. Straight thin black vertical line occurs in the printing.
2. Dark black vertical band occur in the printing.

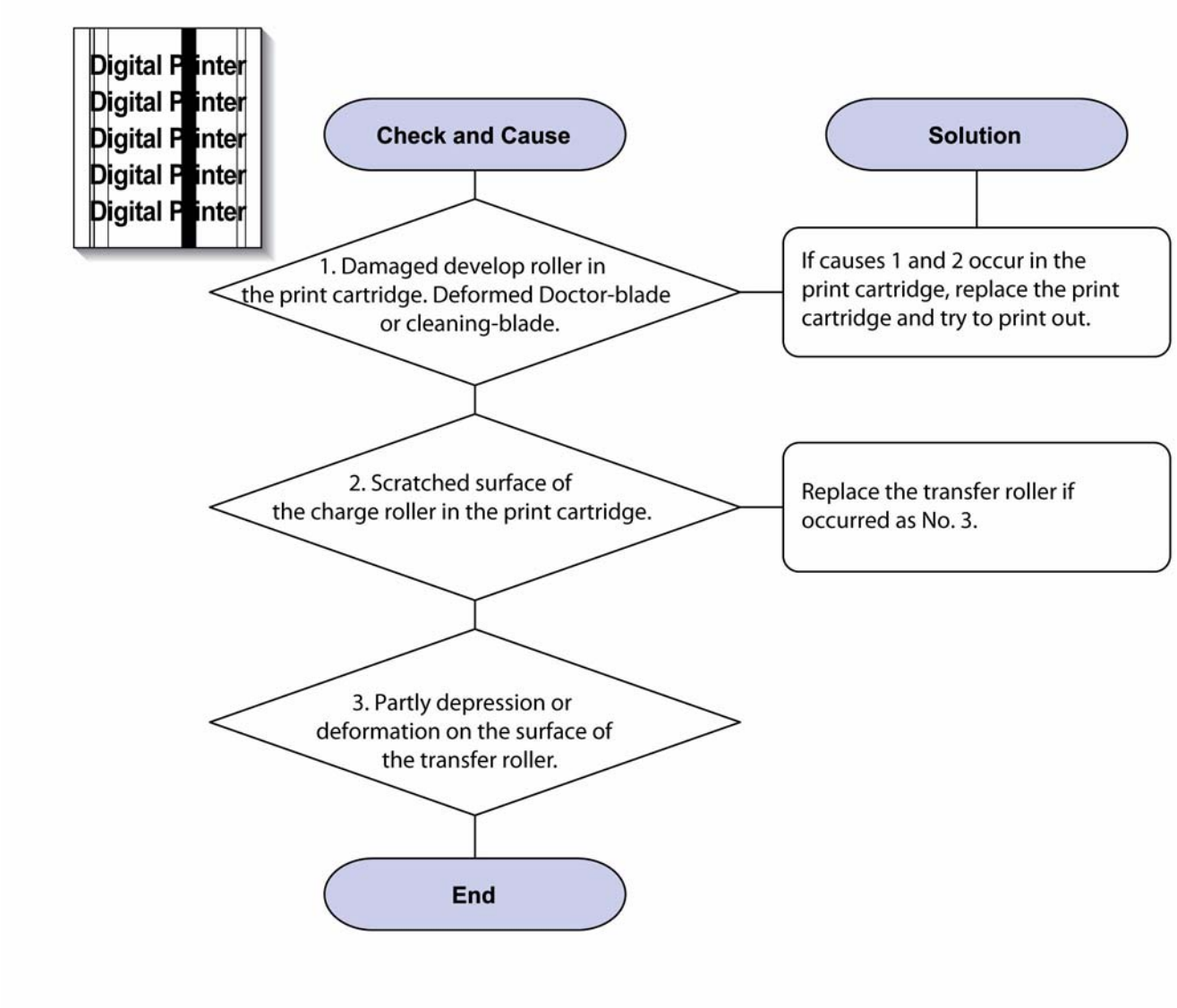

Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer
Check and Cause
Solution
1. Damaged develop roller in the print cartridge. Deformed Doctor-blade or cleaning-blade.
If causes 1 and 2 occur in the print cartridge, replace the print cartridge and try to print out.
2. Scratched surface of the charge roller in the print cartridge.
Replace the transfer roller if occurred as No. 3.
3. Partly depression or deformation on the surface of the transfer roller.
End

Figure 1

IQ 4 Vertical White Line

Description

White vertical voids in the image.

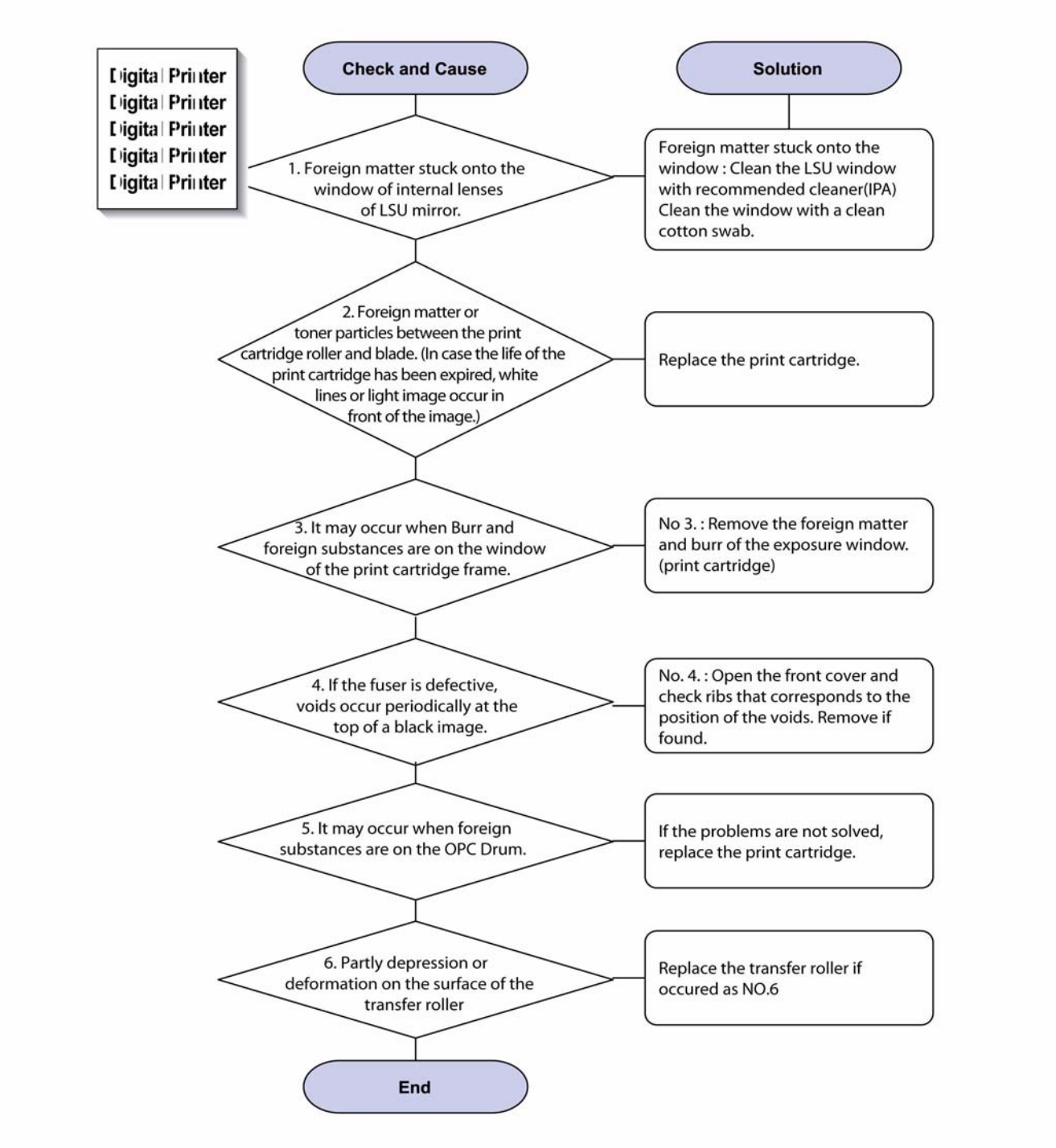

Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer
Check and Cause
Solution
1. Foreign matter stuck onto the window of internal lenses of LSU mirror.
Foreign matter stuck onto the window : Clean the LSU window with recommended cleaner(IPA) Clean the window with a clean cotton swab.
2. Foreign matter or toner particles between the print cartridge roller and blade. (In case the life of the print cartridge has been expired, white lines or light image occur in front of the image.)
Replace the print cartridge.
3. It may occur when Burr and foreign substances are on the window of the print cartridge frame.
No 3. : Remove the foreign matter and burr of the exposure window. (print cartridge)
4. If the fuser is defective, voids occur periodically at the top of a black image.
No. 4. : Open the front cover and check ribs that corresponds to the position of the voids. Remove if found.
5. It may occur when foreign substances are on the OPC Drum.
If the problems are not solved, replace the print cartridge.
6. Partly depression or deformation on the surface of the transfer roller
Replace the transfer roller if occured as NO.6
End

Figure 1

IQ 5 Horizontal Black Band

Description

Dark or blurry horizontal stripes occur in the printing.

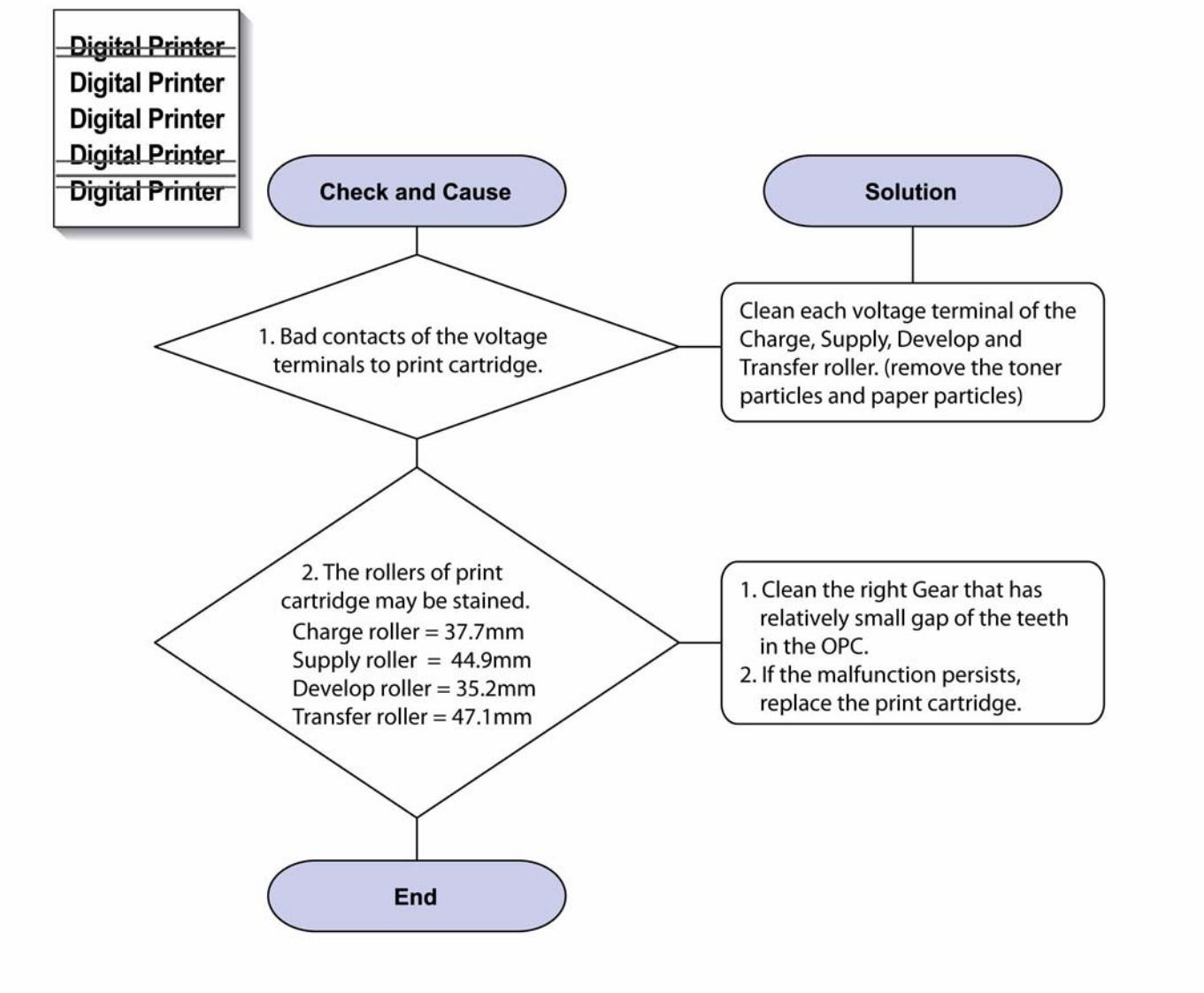

Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer
Check and Cause
Solution
1. Bad contacts of the voltage terminals to print cartridge.
Clean each voltage terminal of the Charge, Supply, Develop and Transfer roller. (remove the toner particles and paper particles)
2. The rollers of print cartridge may be stained.
Charge roller = 37.7mm
Supply roller = 44.9mm
Develop roller = 35.2mm
Transfer roller = 47.1mm
1. Clean the right Gear that has relatively small gap of the teeth in the OPC.
2. If the malfunction persists, replace the print cartridge.
End

Figure 1

IQ 6 Black/White Spot

Description

1. Dark or blurry spots occur periodically in the printing
2. White spots occur periodically in the printing.

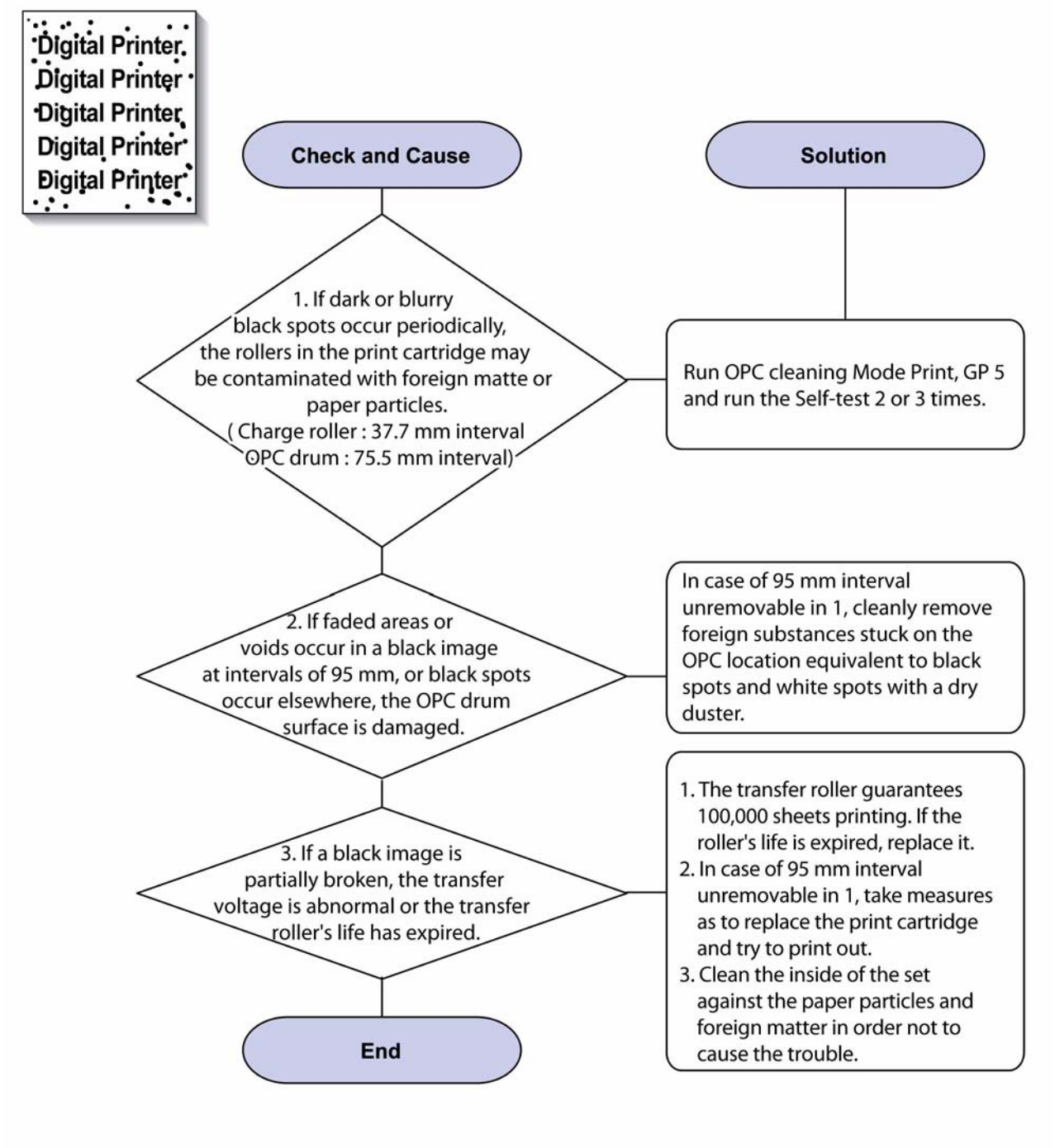

Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer
Check and Cause
Solution
1. If dark or blurry black spots occur periodically, the rollers in the print cartridge may be contaminated with foreign matte or paper particles. (Charge roller : 37.7 mm interval OPC drum : 75.5 mm interval)
Run OPC cleaning Mode Print, GP 5 and run the Self-test 2 or 3 times.
2. If faded areas or voids occur in a black image at intervals of 95 mm, or black spots occur elsewhere, the OPC drum surface is damaged.
In case of 95 mm interval unremovable in 1, cleanly remove foreign substances stuck on the OPC location equivalent to black spots and white spots with a dry duster.
3. If a black image is partially broken, the transfer voltage is abnormal or the transfer roller's life has expired.
1. The transfer roller guarantees 100,000 sheets printing. If the roller's life is expired, replace it.
2. In case of 95 mm interval unremovable in 1, take measures as to replace the print cartridge and try to print out.
3. Clean the inside of the set against the paper particles and foreign matter in order not to cause the trouble.
End

Figure 1

IQ 7 Light Image

Description

The printed image is light, with no ghost.

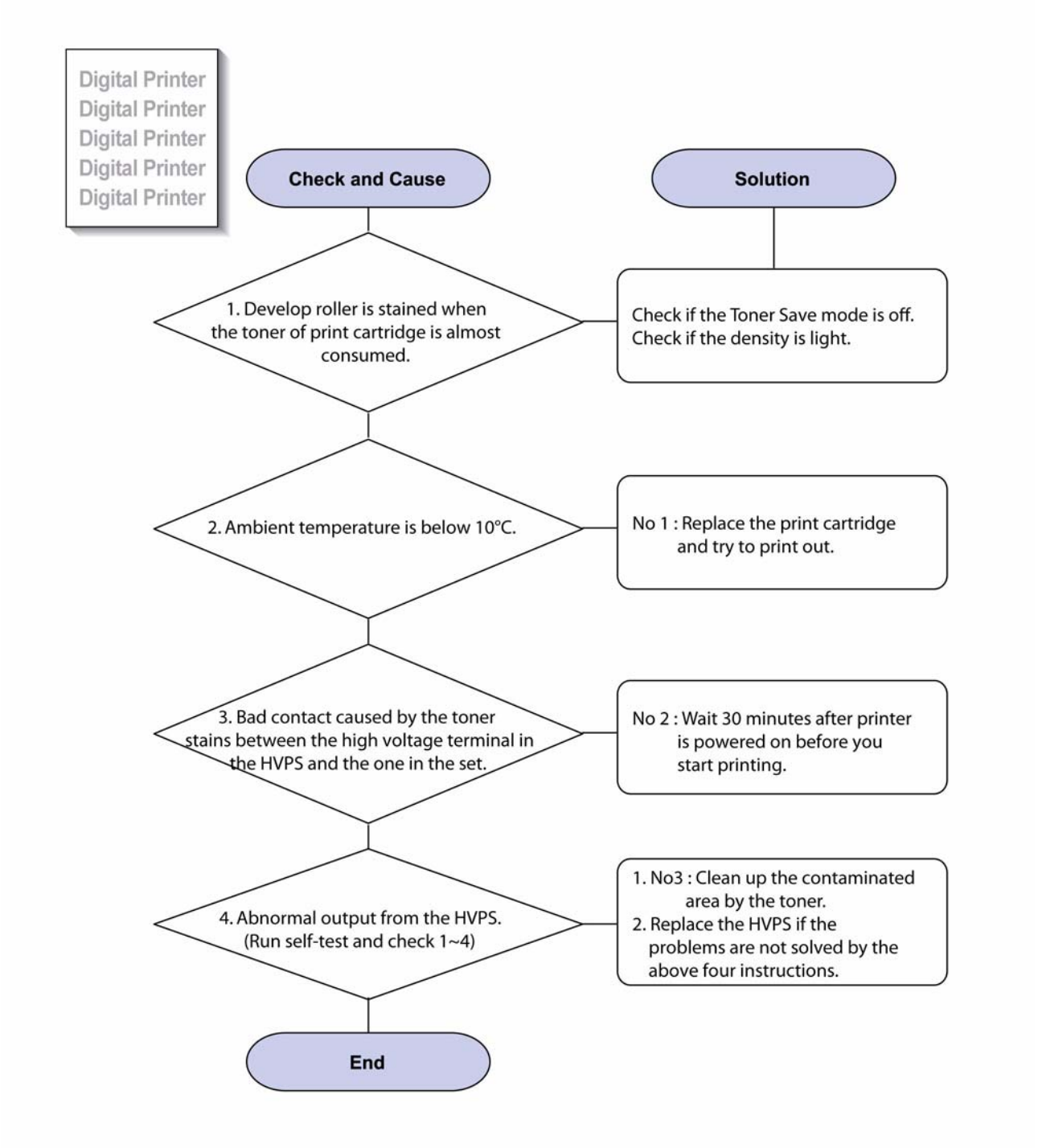

Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer
Check and Cause
Solution
1. Develop roller is stained when the toner of print cartridge is almost consumed.
Check if the Toner Save mode is off.
Check if the density is light.
2. Ambient temperature is below 10°C.
No 1 : Replace the print cartridge and try to print out.
3. Bad contact caused by the toner stains between the high voltage terminal in the HVPS and the one in the set.
No 2 : Wait 30 minutes after printer is powered on before you start printing.
4. Abnormal output from the HVPS. (Run self-test and check 1~4)
1. No3 : Clean up the contaminated area by the toner.
2. Replace the HVPS if the problems are not solved by the above four instructions.
End

Figure 1

IQ 8 Dark Image or a Black Page

Description

The printed image is dark.

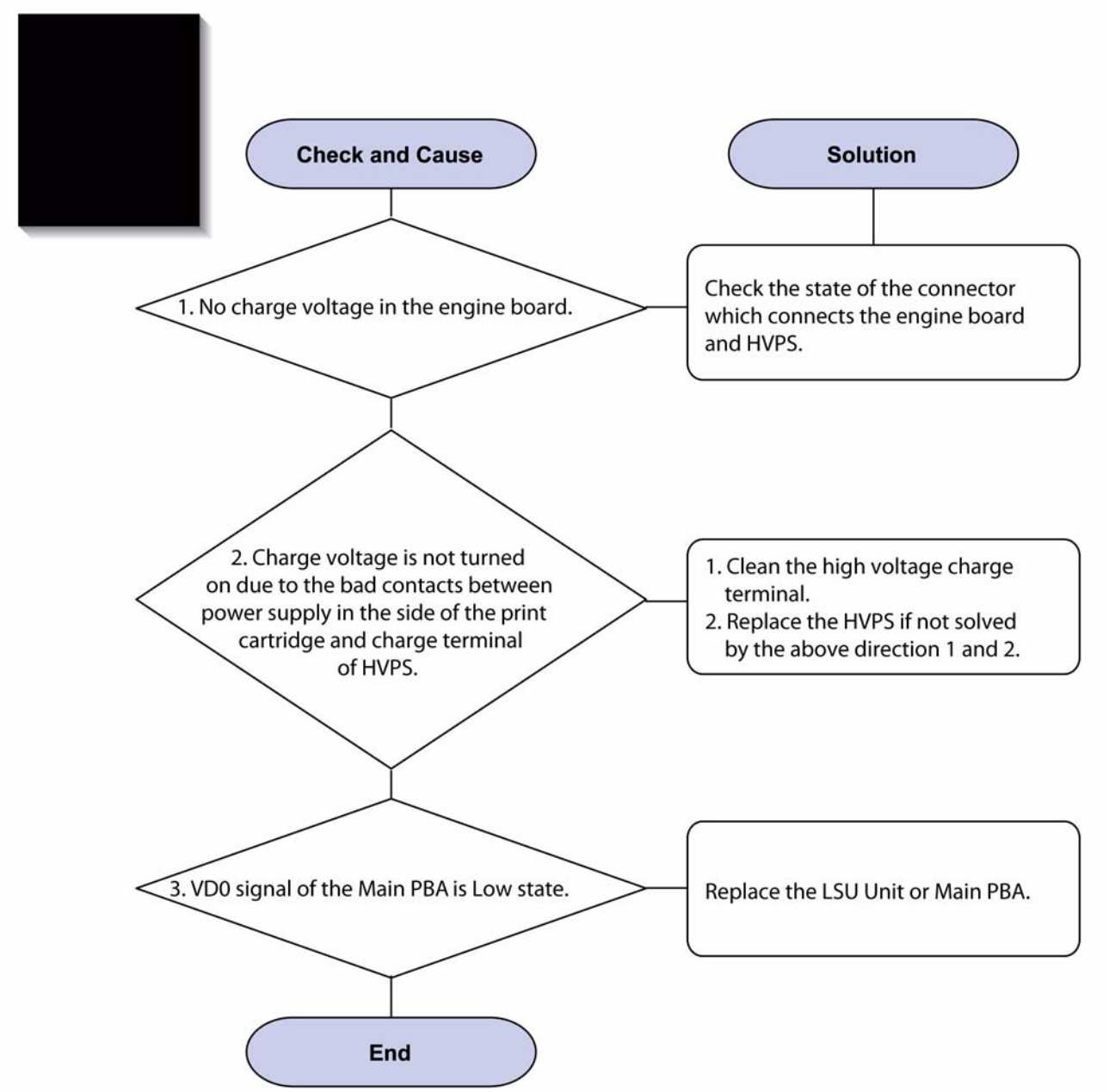

Check and Cause
Solution
1. No charge voltage in the engine board.
Check the state of the connector which connects the engine board and HVPS.
2. Charge voltage is not turned on due to the bad contacts between power supply in the side of the print cartridge and charge terminal of HVPS.
1. Clean the high voltage charge terminal.
2. Replace the HVPS if not solved by the above direction 1 and 2.
3. VD0 signal of the Main PBA is Low state.
Replace the LSU Unit or Main PBA.
End

Figure 1

IQ 9 Uneven Density

Description

Print density is uneven between left and right.

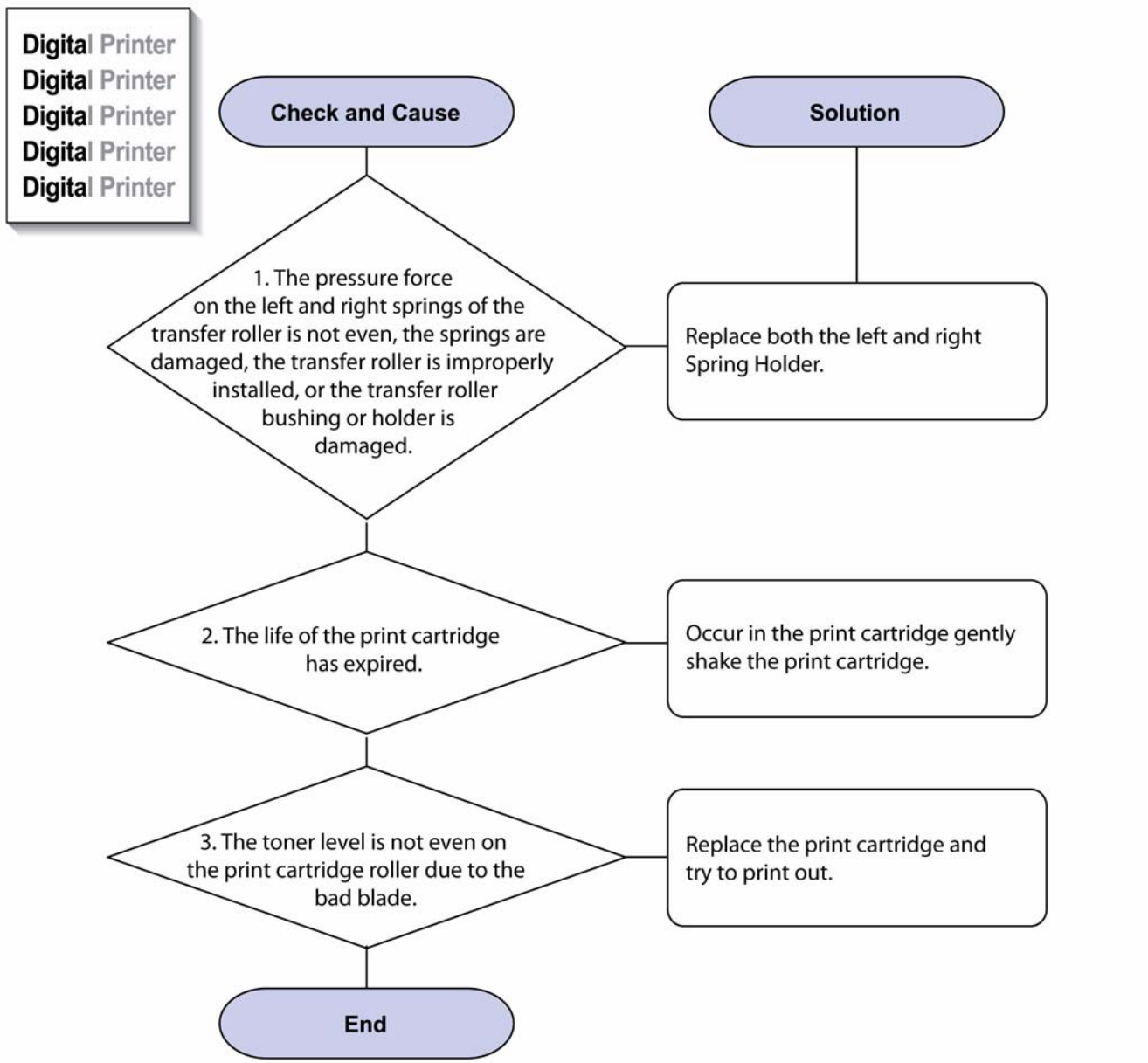

Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer
Check and Cause
Solution
1. The pressure force on the left and right springs of the transfer roller is not even, the springs are damaged, the transfer roller is improperly installed, or the transfer roller bushing or holder is damaged.
Replace both the left and right Spring Holder.
2. The life of the print cartridge has expired.
Occur in the print cartridge gently shake the print cartridge.
3. The toner level is not even on the print cartridge roller due to the bad blade.
Replace the print cartridge and try to print out.
End

Figure 1

IQ 10 Background

Description

Light dark background appears in whole area of the printing.

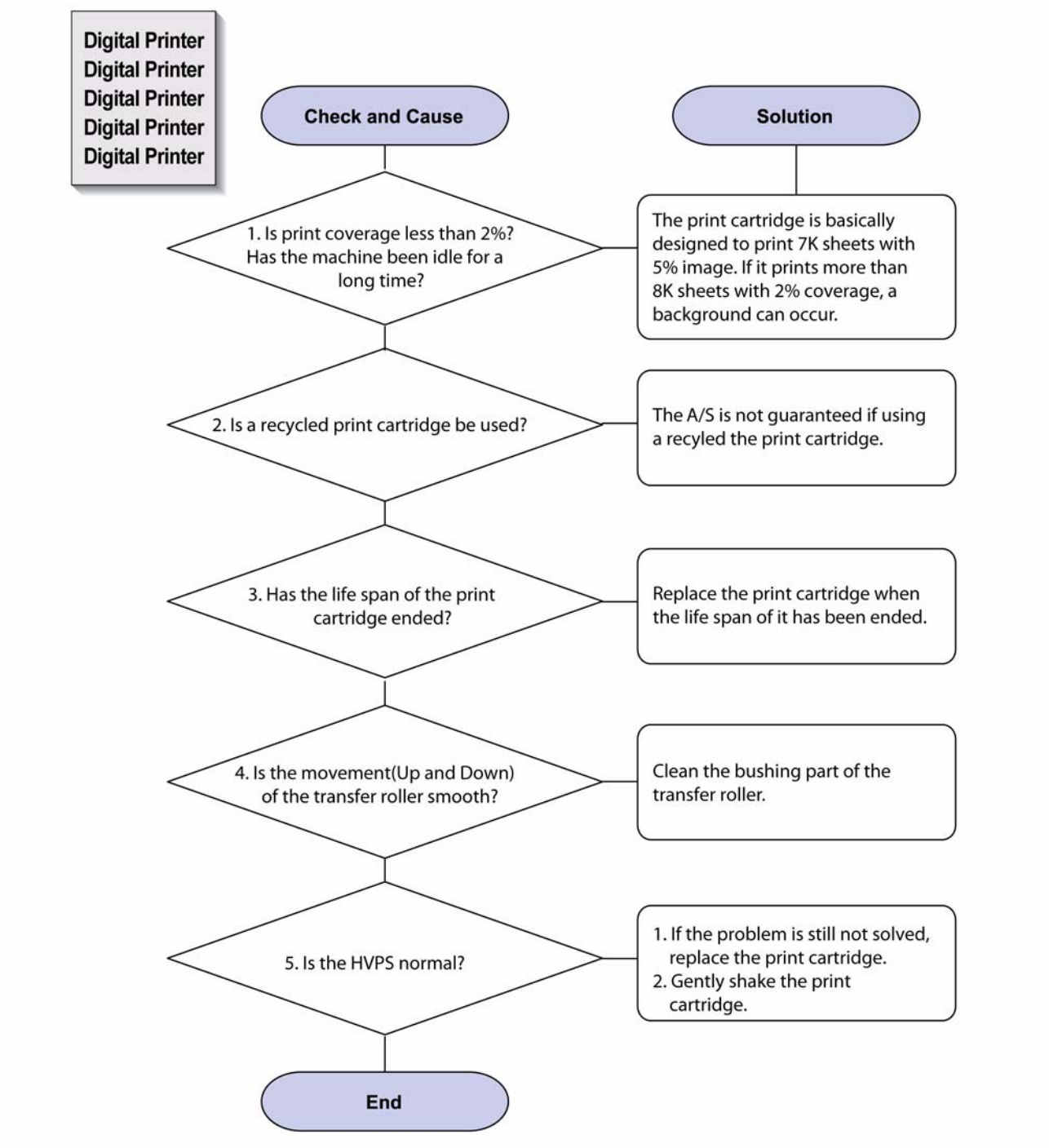

Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer
Check and Cause
Solution
1. Is print coverage less than 2%? Has the machine been idle for a long time?
The print cartridge is basically designed to print 7K sheets with 5% image. If it prints more than 8K sheets with 2% coverage, a background can occur.
2. Is a recycled print cartridge be used?
The A/S is not guaranteed if using a recyled the print cartridge.
3. Has the life span of the print cartridge ended?
Replace the print cartridge when the life span of it has been ended.
4. Is the movement(Up and Down) of the transfer roller smooth?
Clean the bushing part of the transfer roller.
5. Is the HVPS normal?
1. If the problem is still not solved, replace the print cartridge.
2. Gently shake the print cartridge.
End

Figure 1

IQ 11 Ghost (1)

Description

Ghost occurs at 95 mm intervals of the OPC drum in the whole printing.

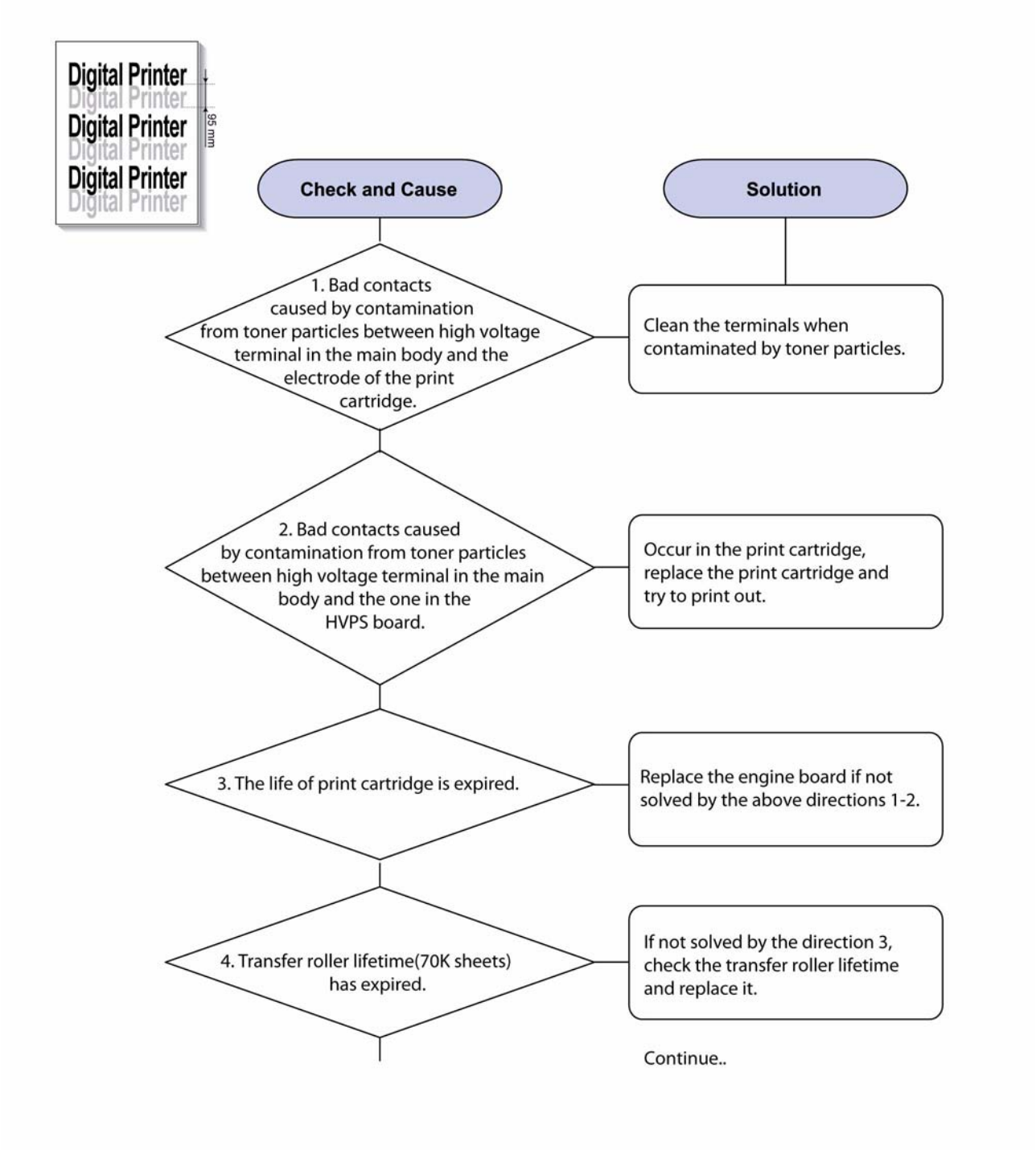

Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer
95 mm
Check and Cause
Solution
1. Bad contacts caused by contamination from toner particles between high voltage terminal in the main body and the electrode of the print cartridge.
Clean the terminals when contaminated by toner particles.
2. Bad contacts caused by contamination from toner particles between high voltage terminal in the main body and the one in the HVPS board.
Occur in the print cartridge, replace the print cartridge and try to print out.
3. The life of print cartridge is expired.
Replace the engine board if not solved by the above directions 1-2.
4. Transfer roller lifetime(70K sheets) has expired.
If not solved by the direction 3, check the transfer roller lifetime and replace it.
Continue..

Figure 1

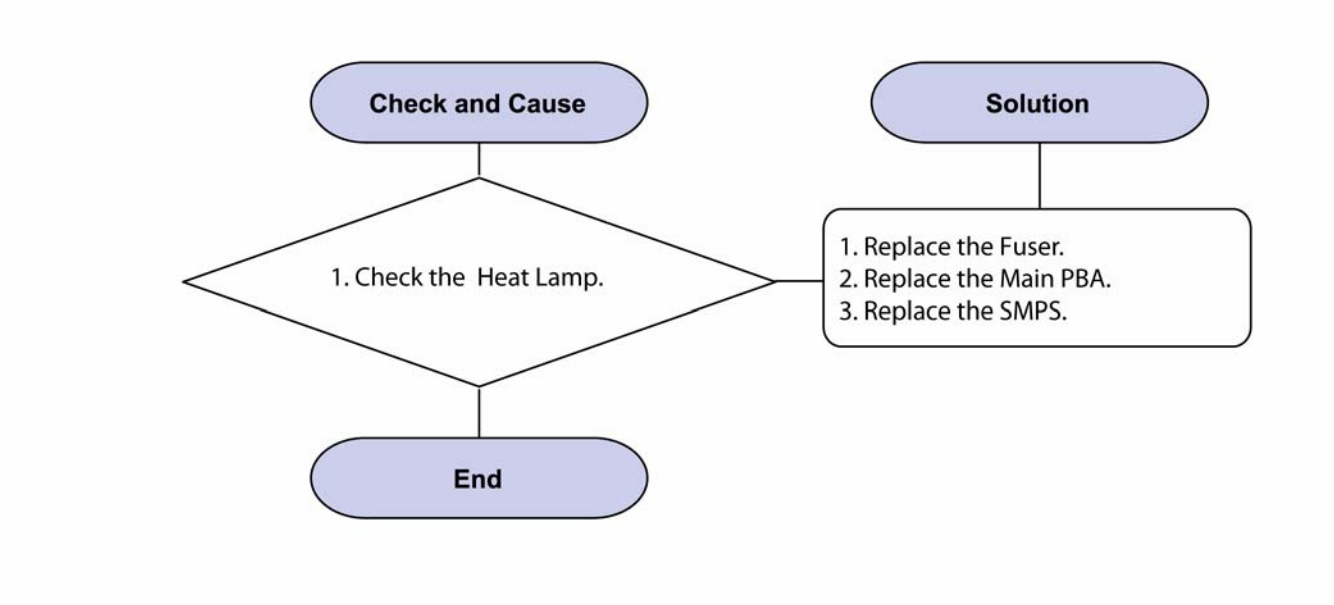

Check and Cause
Solution
1. Check the Heat Lamp.
1. Replace the Fuser.
2. Replace the Main PBA.
3. Replace the SMPS.
End

Figure 2

IQ 12 Ghost (2)

Description

Ghost occurs at 95 mm intervals of the OPC drum in the whole printing. (When printing on card stock or transparencies using manual feeder)

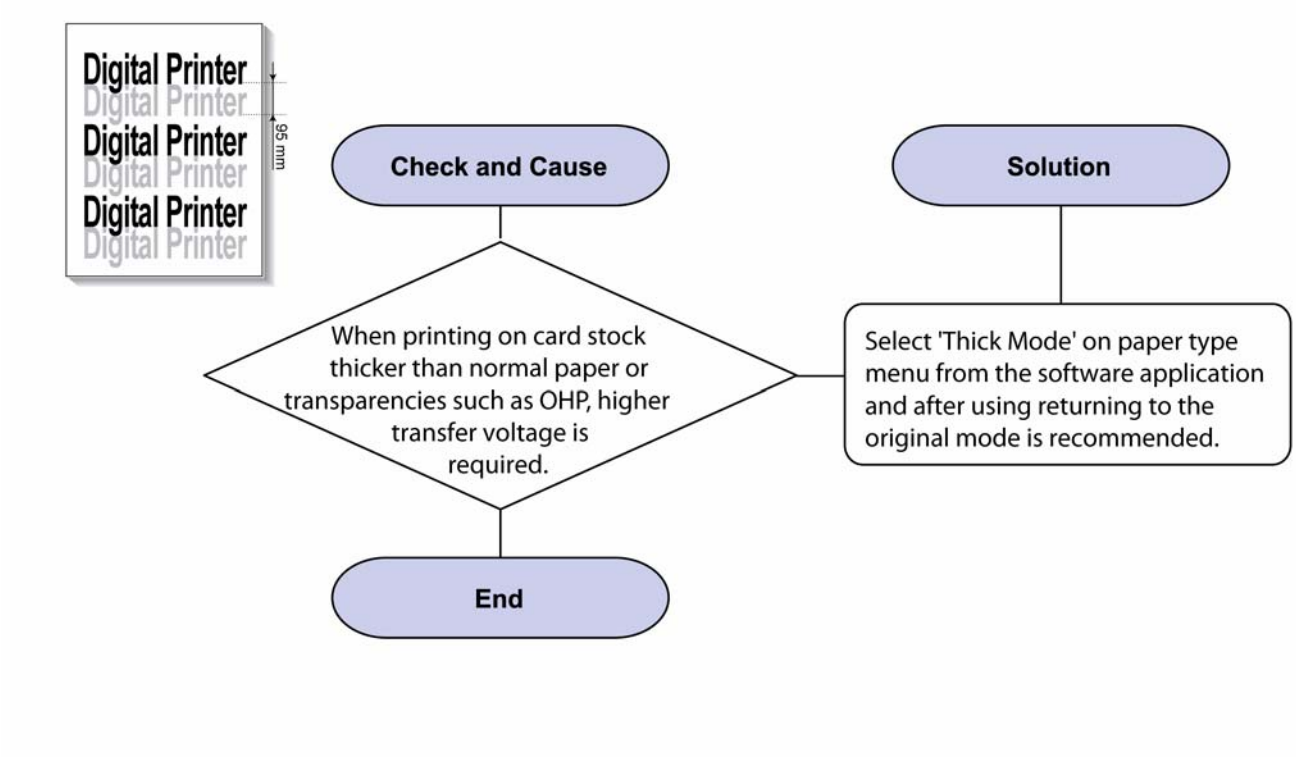

Digital Printer
95 mm
Check and Cause
Solution
When printing on card stock thicker than normal paper or transparencies such as OHP, higher transfer voltage is required.
Select 'Thick Mode' on paper type menu from the software application and after using returning to the original mode is recommended.
End

Figure 1

IQ 13 Ghost (3): Fuser

Description

Ghost occurs at 82 or 92 mm intervals.

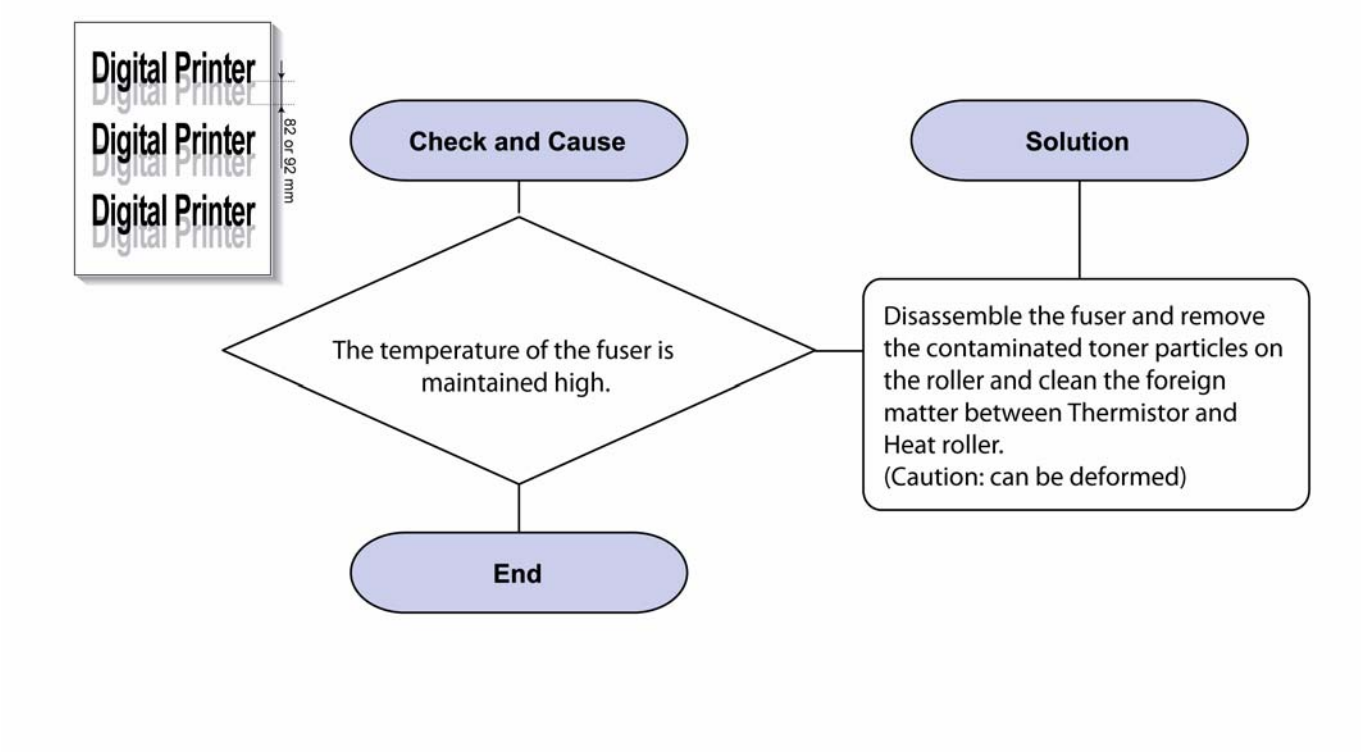

Digital Printer
Digital Printer
Digital Printer
82 or 92 mm
Check and Cause
Solution
The temperature of the fuser is maintained high.
Disassemble the fuser and remove the contaminated toner particles on the roller and clean the foreign matter between Thermistor and Heat roller.
(Caution: can be deformed)
End

Figure 1

IQ 14 Stains on the Face of Page

Description

The background on the face of the printed page is stained.

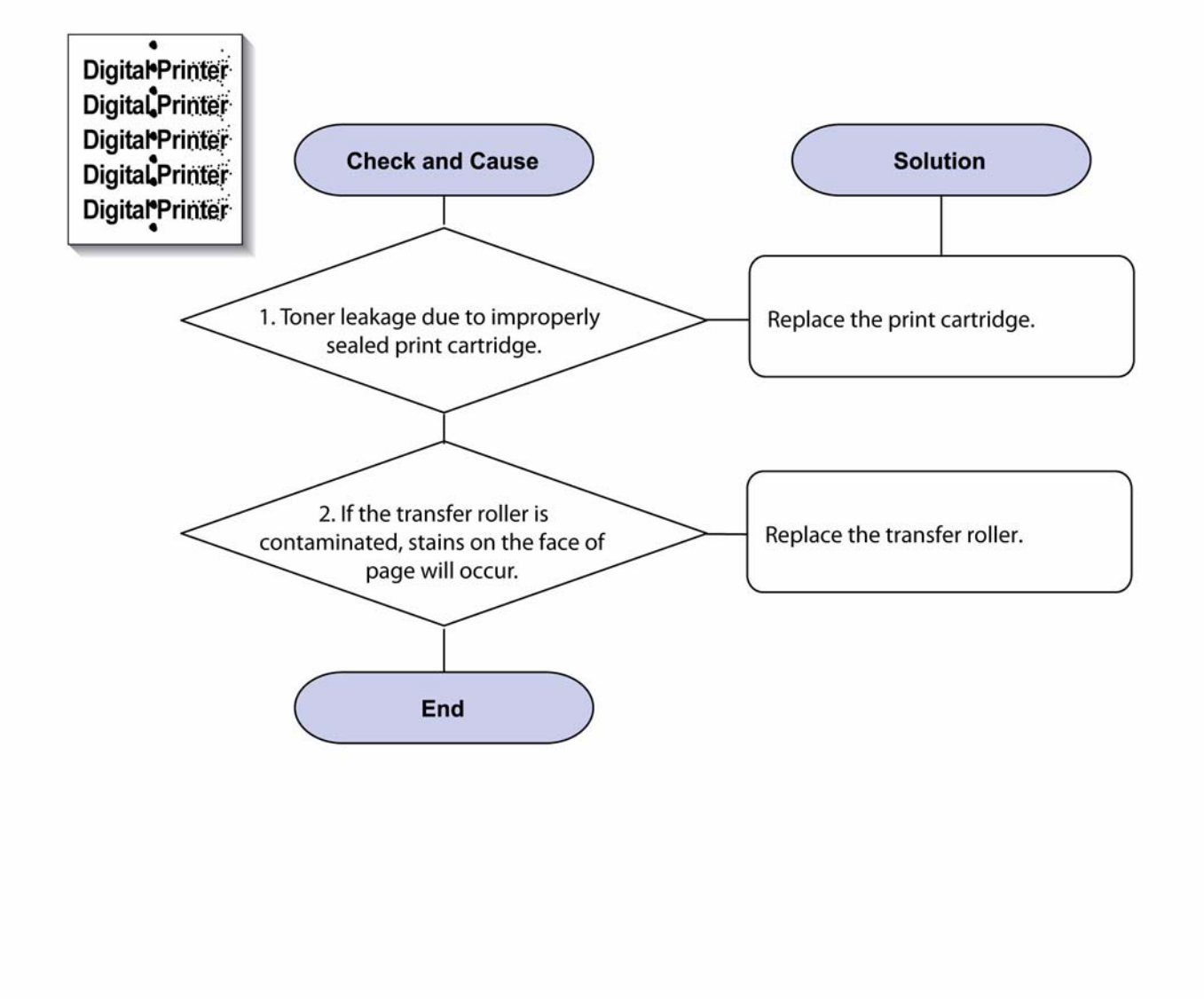


Figure 1

IQ 15 Stains on Back of Page

Description

The back of the page is stained at 57 or 92 mm intervals.

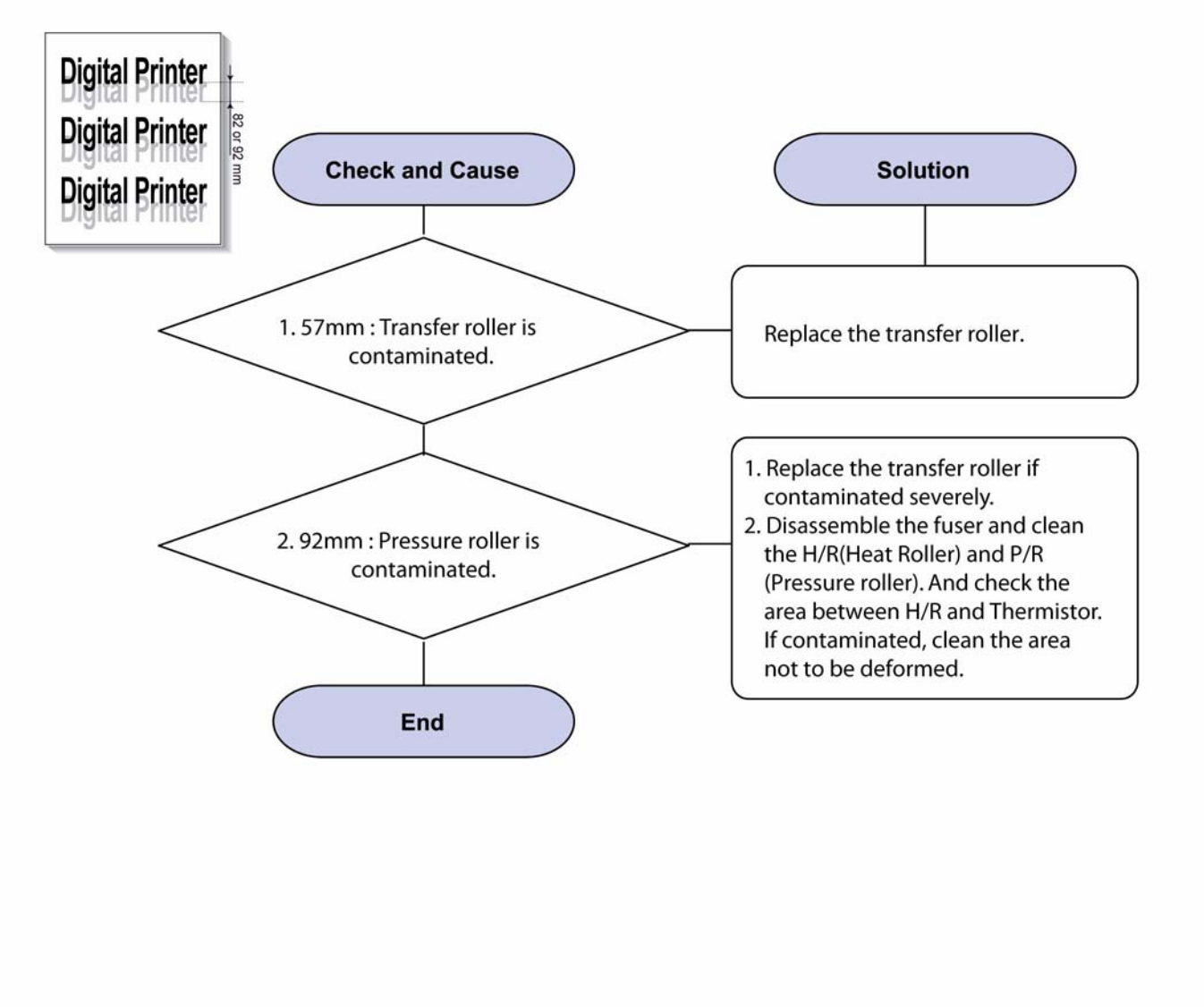

Digital Printer
Digital Printer
Digital Printer
82 or 92 mm
Check and Cause
Solution
1. 57mm : Transfer roller is contaminated.
Replace the transfer roller.
2. 92mm : Pressure roller is contaminated.
1. Replace the transfer roller if contaminated severely.
2. Disassemble the fuser and clean the H/R(Heat Roller) and P/R (Pressure roller). And check the area between H/R and Thermistor. If contaminated, clean the area not to be deformed.
End

Figure 1

IQ 16 Blank Page Print Out (1)

Description

Blank page is printed.

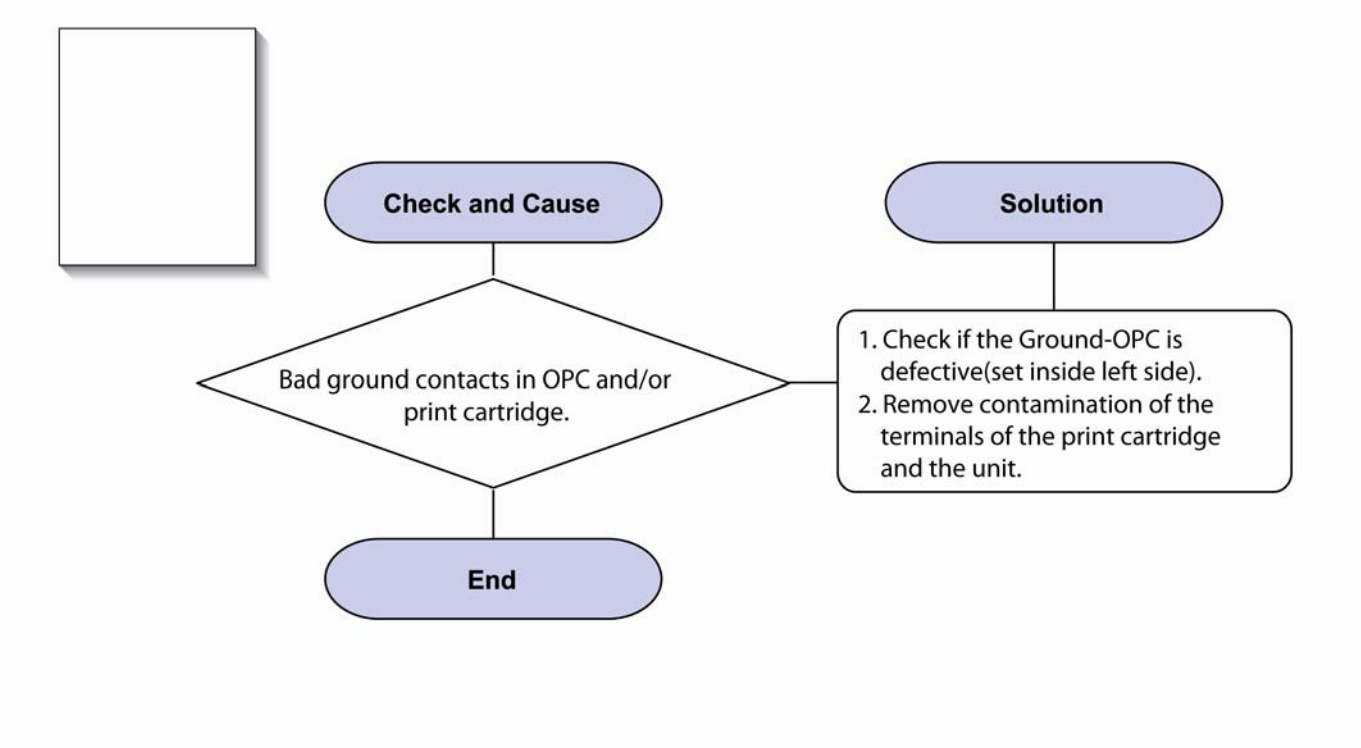

Check and Cause
Solution
Bad ground contacts in OPC and/or print cartridge.
1. Check if the Ground-OPC is defective(set inside left side).
2. Remove contamination of the terminals of the print cartridge and the unit.
End

Figure 1

IQ 17 Blank Page Print Out (2)

Description

1. Blank page is printed.
2. One or several blank pages are printed
3. When the printer turns on, several blank pages print.

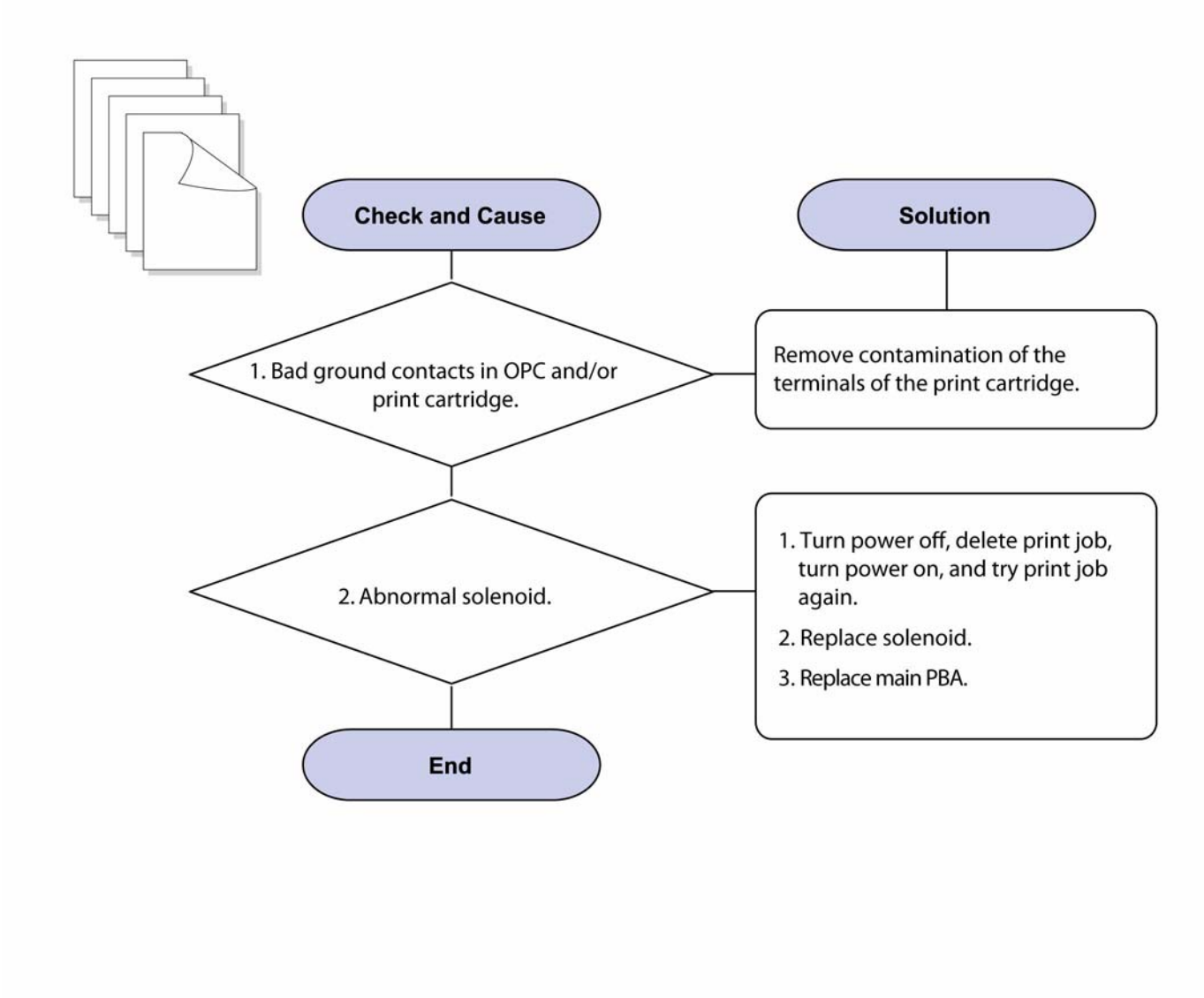
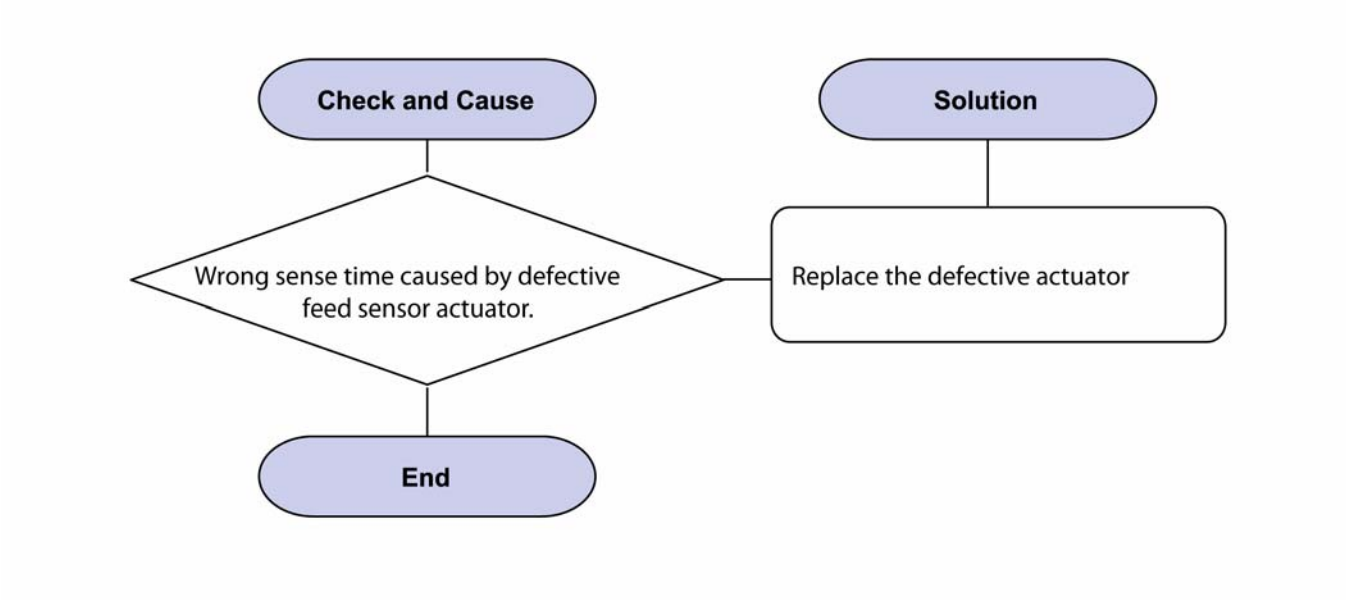

Check and Cause
Solution
1. Bad ground contacts in OPC and/or print cartridge.
Remove contamination of the terminals of the print cartridge.
2. Abnormal solenoid.
1. Turn power off, delete print job, turn power on, and try print job again.
2. Replace solenoid.
3. Replace main PBA.
End

Figure 1

IQ 18 Wrong Print Position

Description

Printing begins at wrong position on the paper.



IQ 19 Curved Vertical Line

Description

When printing, vertical line get curved.

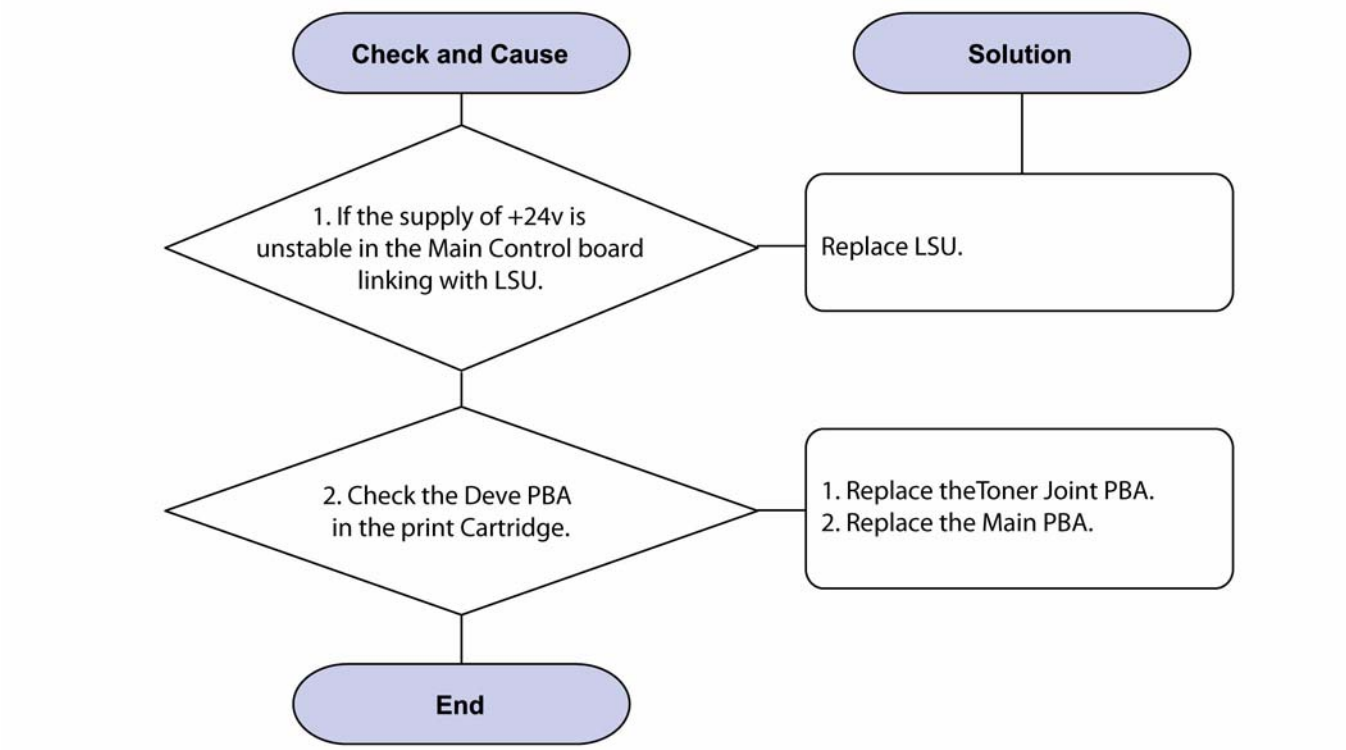

Check and Cause
Solution
1. If the supply of +24v is unstable in the Main Control board linking with LSU.
Replace LSU.
2. Check the Deve PBA in the print Cartridge.
1. Replace theToner Joint PBA.
2. Replace the Main PBA.
End

Figure 1

IQ 20 Signs and Measures of Poor Print Cartridge

Table 1:

Fault	Signs	Cause & Check	Solution
Light image and partially blank image (The life is ended.)	• The printed image is light or unclean and untidy. • Some part of the image is not printed. • Periodically a noise as "tick tick" occurs.	1. If the image is light or unclean and untidy printed image -Shake the print cartridge and then recheck. (1)NG: Check the weight of the print cartridge (2)OK: Lack of toner, so the life is nearly closed. 2. Some part of image is not printed -Shake the print cartridge and then recheck. (1)NG: Check the weight of the print cartridge and clean the LSU window with a cotton swab, then recheck. (2)OK: Lack of toner, so the life is nearly closed. 3. Periodically a noise as "tick tick" occurs - Measure the cycle and the weight of the print cartridge. 4. White vertical stripes on the whole screen or partly: Check the weight of the print cartridge.	1. All of 1, 2, 3 above-If it become better by shaking, replace with a new print cartridge after 50-100 sheets in the closing state of the life span. 2. In case of 2-If it becomes better after cleaning the LSU window, then the print cartridge is normal. (Because of foreign substance on the LSU window, the image has not been printed partly.) 3. In case of 3-If the cycle of noise is about 2 seconds, the toner inside the print cartridge has been nearly exhausted. (Purchase and replace with a new print cartridge after using about 200 sheets at the point of occurrence) 4. In case of 3-This is a phenomenon caused by lack of toner, so replace with a new print cartridge.
Toner Contamination	• Toner is fallen on the papers periodically. • Contaminated with toner on prints partly or over the whole surface.	1. Toner is fallen on the paper periodically. (1)Check the cycle of the falling of the toner. (2)Check the appearance of both ends of the print cartridge OPC drum. 2.The centre of the printed matter is contaminated with toner. (1)Check whether foreign substances or toner are stuck to the terminal (contact point) of the print cartridge. (2)Check whether the state of the terminal assembly is normal.	1. If both ends of the OPC drum are contaminated with toner: Check the life of the print cartridge. 2. Check whether it could be recycled. 3. If it cannot be recycled: Replace the print cartridge.

Table 1:

Fault	Signs	Cause & Check	Solution
White Black spot	• Light or dark black dots on the image occur periodically. • White spots occur in the image periodically.	1. If light or dark periodical black dots occur, this is because the print cartridge rollers are contaminated with foreign substance or paper particles. (1)38mm interval: Charged roller (2)95mm interval: OPC cycle 2. If white spots occur in a black image at intervals of 95mm, or black spots occur elsewhere, the OPC drum is damaged or foreign substance is stuck to the surface. 3. If a black and white or graphic image is partially broken at irregular intervals, the transfer roller's life has been expired or the transfer voltage is abnormal.	1. In case of 1 above -Run OPC Cleaning Mode Print 4-5 times repeatedly to remove, refer to GP 5. Especially check foreign substance on the OPC surface, then remove them with a clean gauze moistened with IPA (Isopropyl Alcohol) not to damage OPC if necessary. Never use usual alcohol. 2. In case of 2 If they are not disappeared by running OPC Cleaning Mode Print 4-5 times.: at intervals of 38mm -Replace the print cartridge.: at intervals of 95mm - Remove foreign substance.: Broken image -Replace the print cartridge according to carelessness. 3. In case of 3 -Exchange the transfer roller because the life of the transfer roller in use has been expired. (Check the transfer voltage and readjust if different.)
Recycled product	• Poor appearance of the print cartridge. • Unclean and rough printouts. • Bad background in the image.	1. Poor appearance of the print cartridge. (1)Check the damage to label and whether different materials are used. (2)Check the appearance of parts of the print cartridge, such as frame, hopper. 2. Unclean and rough printouts. (1)Check whether foreign substance or toner are stuck to the terminal (contact point) of the print cartridge. (2)Check whether the state of the terminal assembly is normal.	1. In case of 1 (1)If there is an evidence of disassembling the print cartridge. (2)If materials other than normal parts of the print cartridge are added or substituted. 2. In case of 2 -If there are any abnormality in connection with the situation of 1. (1)It occurs when the print cartridge is recycled over 2 times. (2)If toner nearly being expired are collected to use, it is judged as the recycled print cartridge.

Table 1:

Fault	Signs	Cause & Check	Solution
Ghost & Image Contamination	• The printed image is too light or dark, or partially contaminated black. • Totally contaminated black. (Black image printed out) • The density of printouts is too dark and ghost occurs.	1. The printed image is too light or dark, or partially contaminated black. (1)Check whether foreign substance or toner are stuck to the terminal (point of contact) of the print cartridge. (2)Check whether the terminal assembly is normal. 2. Totally contaminated black. (Black image printed out) (1)Check whether foreign substances are stuck to the terminal (point of contact) of the print cartridge and the state of assembly. (Especially check the charged roller terminal.) 3. The printed image is dark and ghost occurs. (1)Check foreign substance attached to the terminal (point of contact) of the print cartridge and the state of assembly. (Especially check the developing roller terminal.)	1. All of 1, 2, 3 above (1)Remove toner and foreign substances adhered to the contact point of the print cartridge. (2)The contact point of the unit facing that of the print cartridge also must be cleaned. (3)If the terminal assembly is unsafe: • Fully stick the terminal to or reassemble it after disassembling. • Disassemble the side plate and push the terminal to be stuck, then reassemble it. 2. In case of 2 It is a phenomenon when the OPC drum of the print cartridge is not electrically charged. Clean the terminals of the charged roller, then recheck it. 3. In case of 3 It is a phenomenon as the developing bias voltage of the print cartridge. Clean the terminals of the developing roller, then recheck it.

IQ 21 Low Toner

: The red LED is blinking, which means toner low status

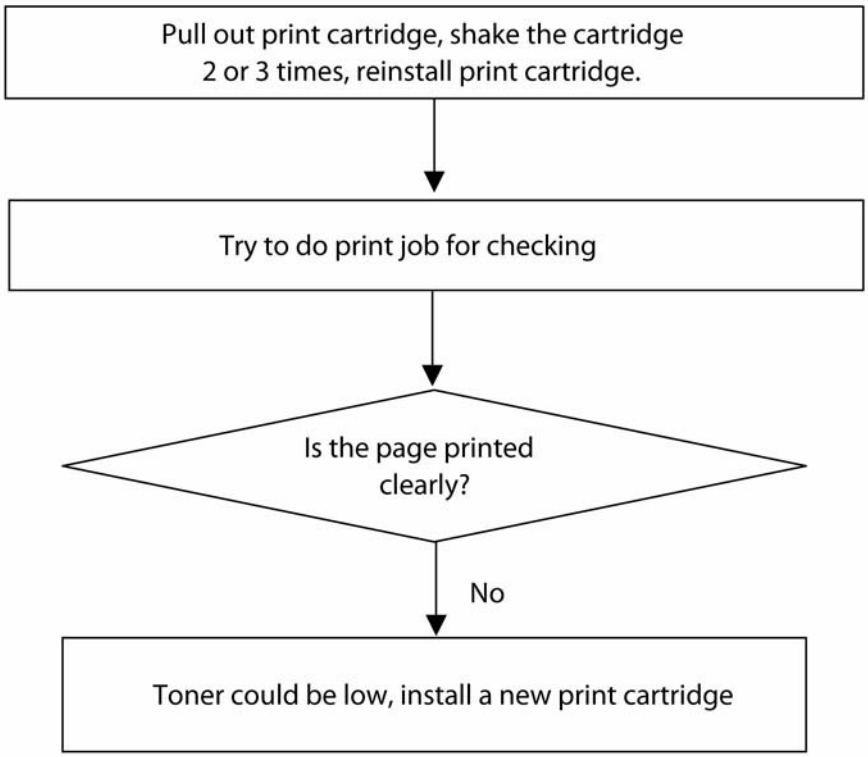

Pull out print cartridge, shake the cartridge
2 or 3 times, reinstall print cartridge.
Try to do print job for checking
Is the page printed
clearly?
No
Toner could be low, install a new print cartridge

Figure 1

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4 Repairs and Adjustments

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REP 1 Front Cover

Parts List on: PL 3

WARNING

Switch off the electricity to the machine. Disconnect the power cord from the customer supply while performing tasks that do not need electricity. Electricity can cause death or injury. Moving parts can cause injury.

1. Take out the Cassette.

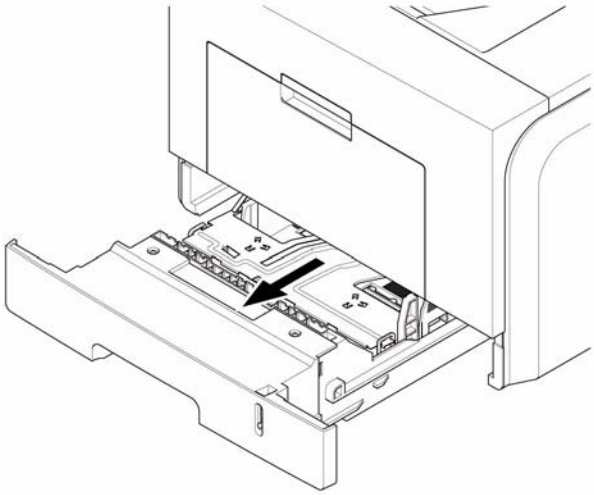

Figure 1

2. Open the Cover.

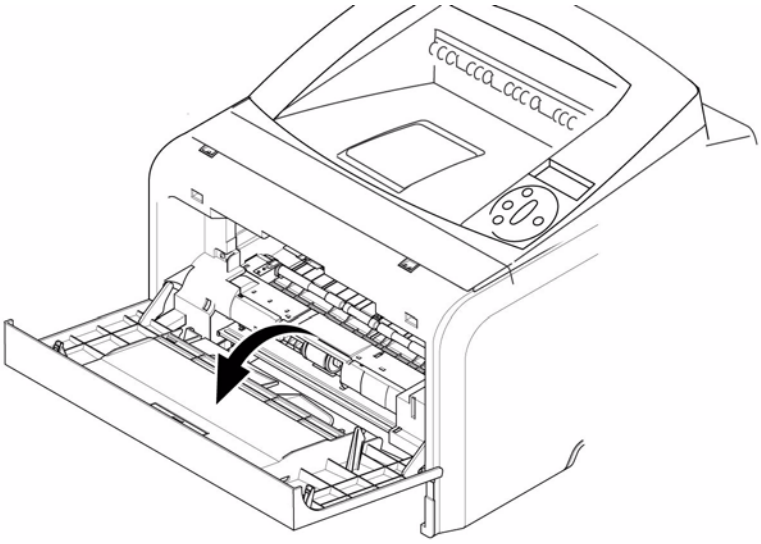

Figure 2

3. If necessary, remove the print cartridge.

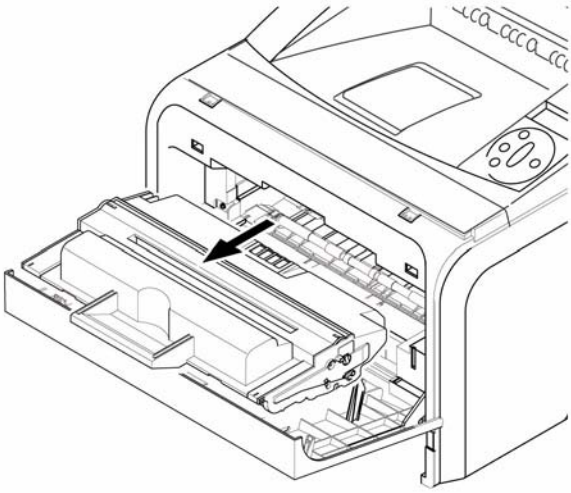

Figure 3

4. To remove the Front Cover, first pull the part below the both side of the Front Cover with a light pressure to the direction of arrow.

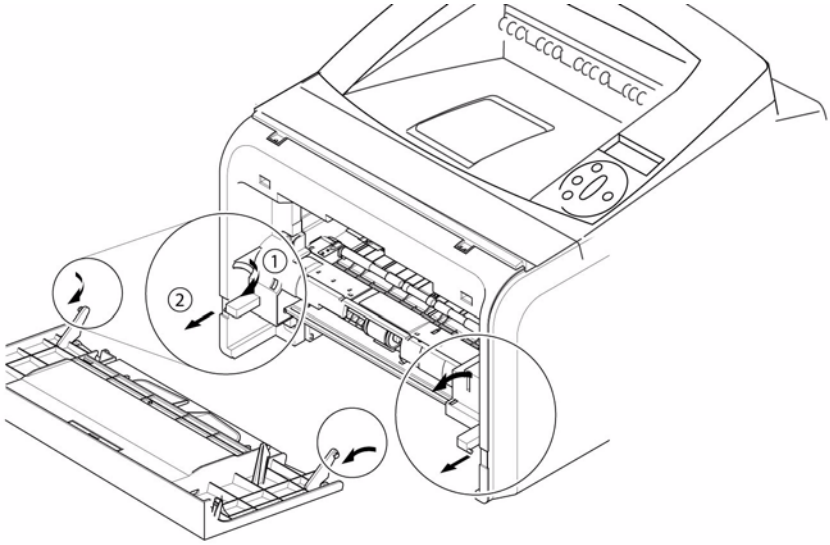

Figure 4

REP 2 MP Tray Assembly

Parts List on: PL 3

WARNING

Switch off the electricity to the machine. Disconnect the power cord from the customer supply while performing tasks that do not need electricity. Electricity can cause death or injury. Moving parts can cause injury.

1. Open the MP Tray Assembly

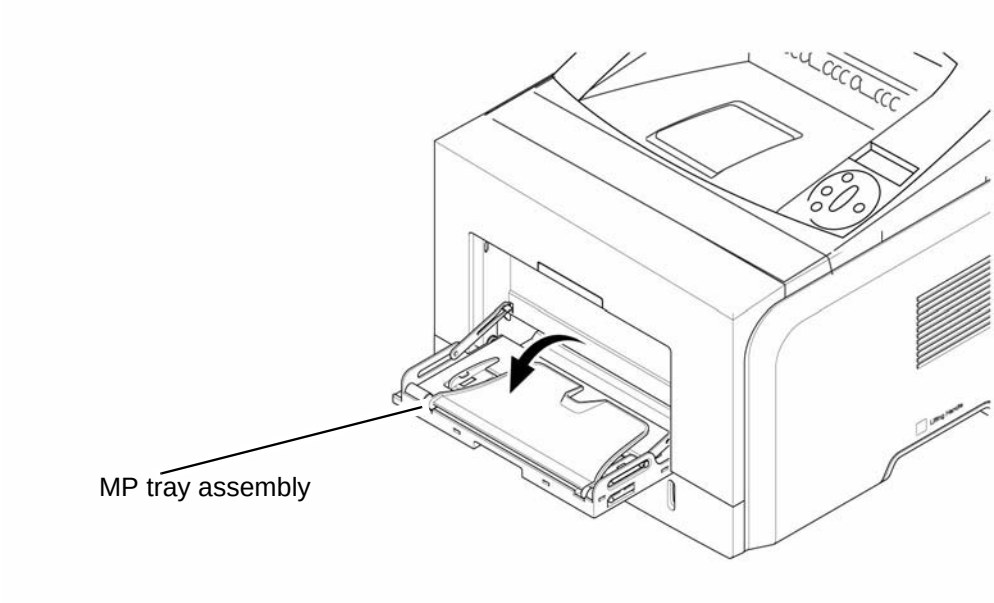

Figure 1

2. Pull the Tray Links from the both side of the Front Cover with a light pressure to the direction of arrow.

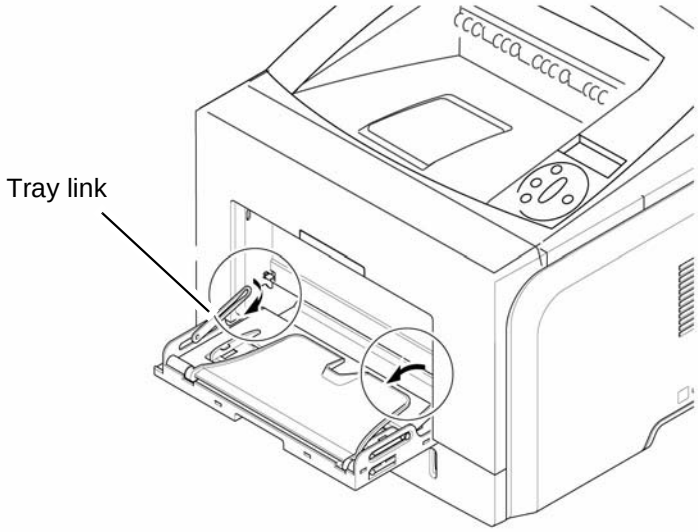

Figure 2

3. Apply light pressure to the both side of the MP Tray Assembly and pull it in the direction of arrow, as shown below.

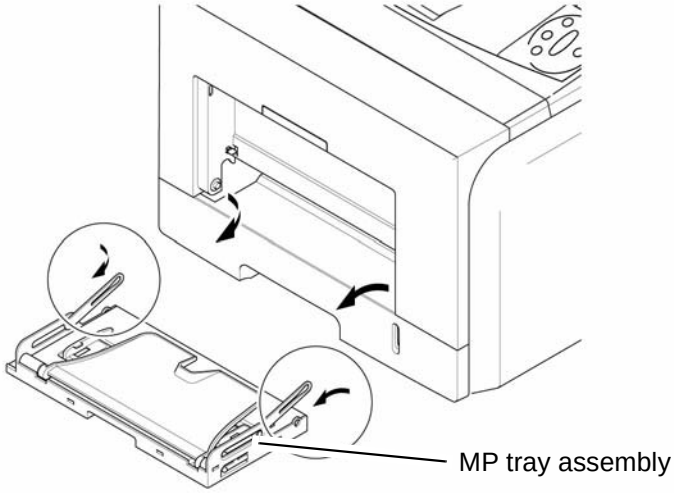

Figure 3

REP 3 Rear Cover

Parts List on: PL 2

WARNING

Switch off the electricity to the machine. Disconnect the power cord from the customer supply while performing tasks that do not need electricity. Electricity can cause death or injury. Moving parts can cause injury.

1. Take out the Duplex Unit.

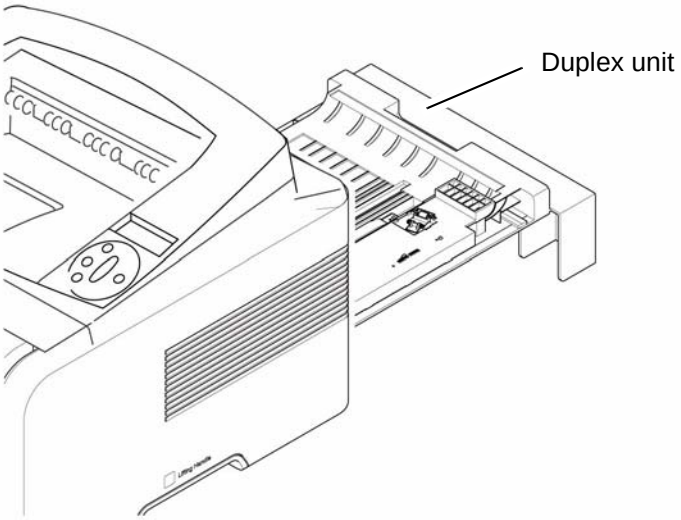

Figure 1

2. Remove the four screws securing the Rear Cover and then Release the Rear Cover from the machine.

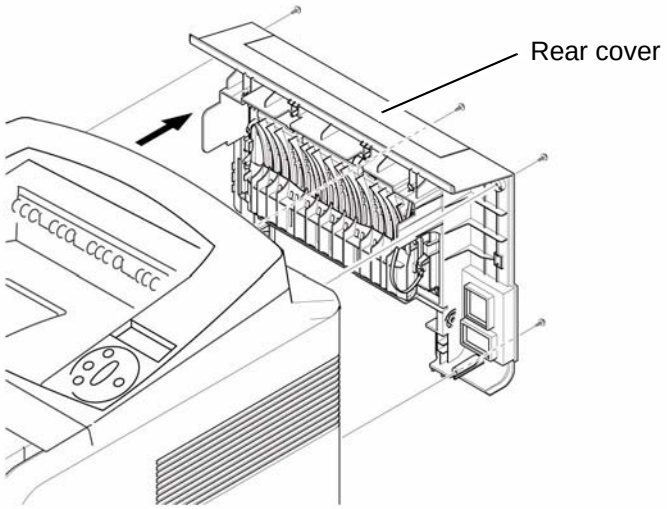

Figure 2

3. To remove the Face Up Cover, first release the Stopper Strap in the direction of arrow.

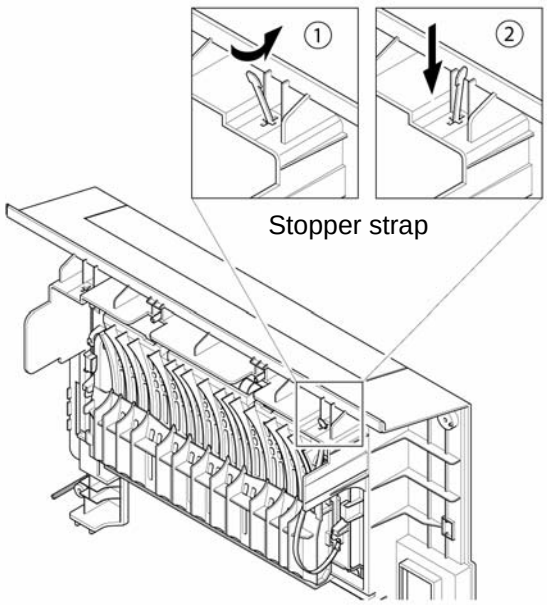

Figure 3

4. Unlatch the Face Up Cover from the Rear Cover and then release the Face Up Cover, as shown below.

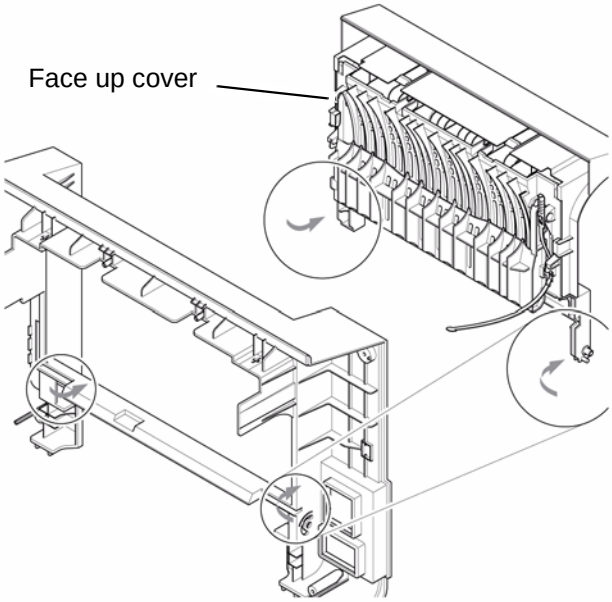

Figure 4

REP 4 Fuser Assembly

Parts List on: PL 13 and PL 14

WARNING

Switch off the electricity to the machine. Disconnect the power cord from the customer supply while performing tasks that do not need electricity. Electricity can cause death or injury. Moving parts can cause injury.

WARNING

Do not touch the fuser while it is hot.

1. Before removing the Fuser Assembly, open the face up cover and open the guide output fuser. Rear Cover, REP 3.
2. Remove the four screws securing the Fuser Assembly and then pull the Fuser Assembly.

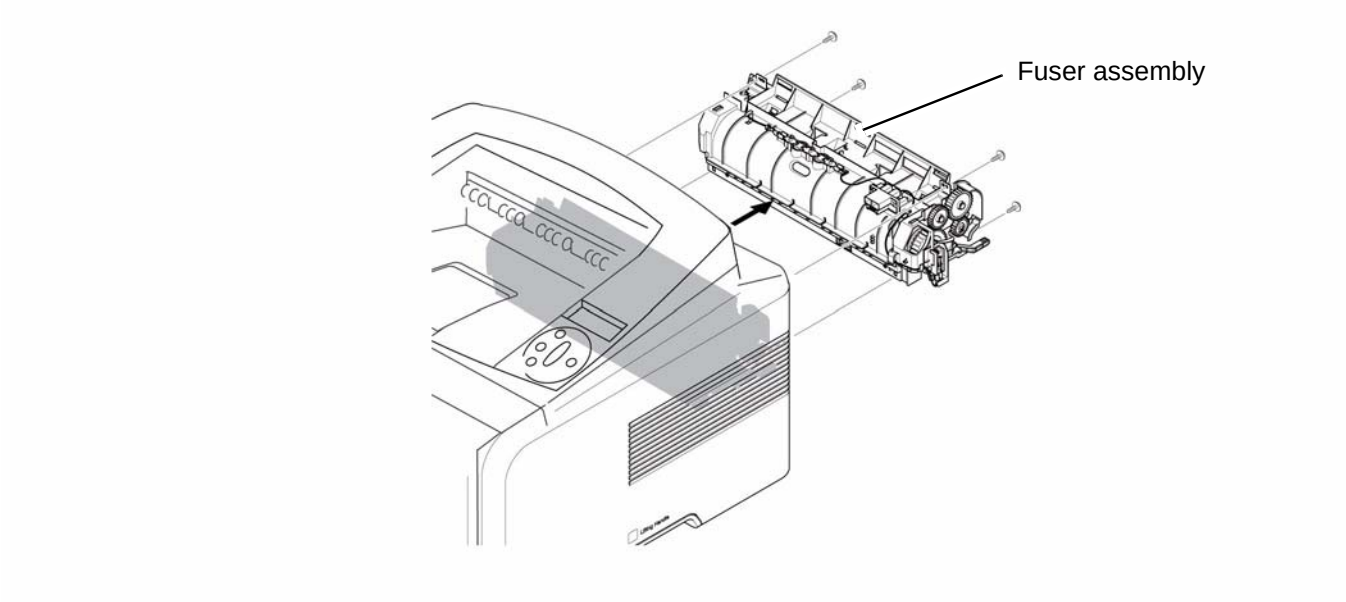

Figure 1

3. Release the CON Harness and REC Harness from the Thermostat and then remove the three screws securing the Thermostat and remove it.

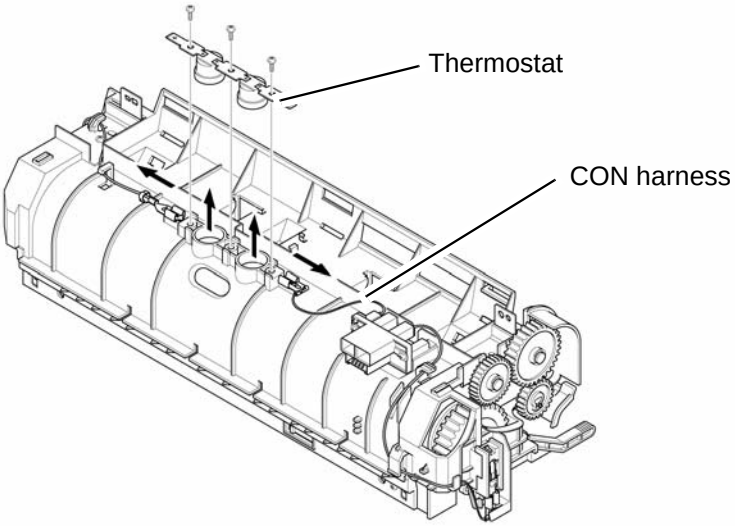

Figure 2

4. To remove the Electrodes, first release REC Harness from the left side of the Electrode and then release the CON Harness from the right side of the Electrode, as shown below.

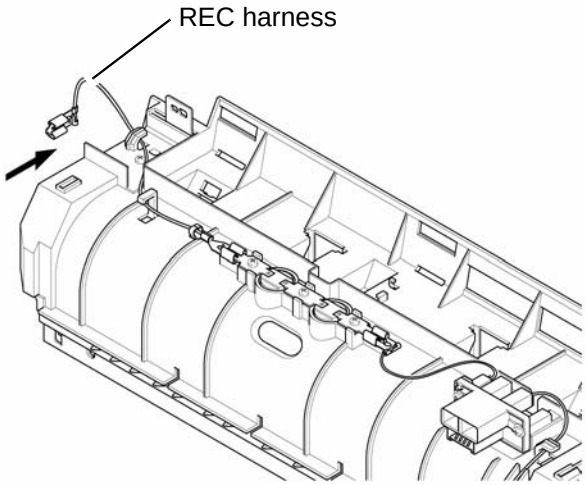

Figure 3

5. Remove the two screws securing the Input Guide and remove it.

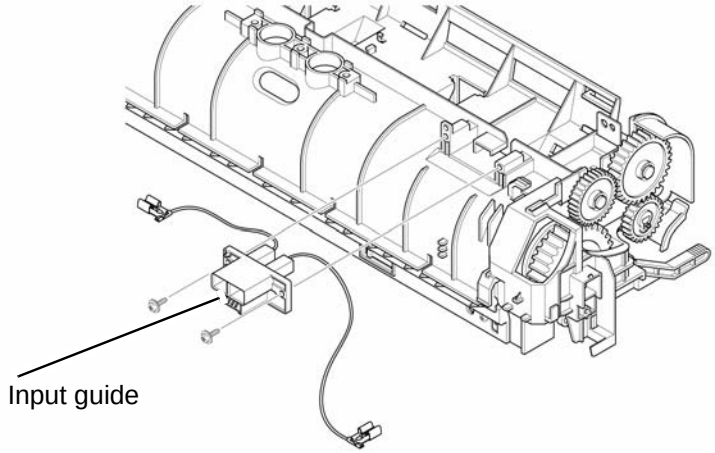

Figure 4

6. Unplug the connector from the Input Guide and remove the one screw securing the Thermistor and remove it.

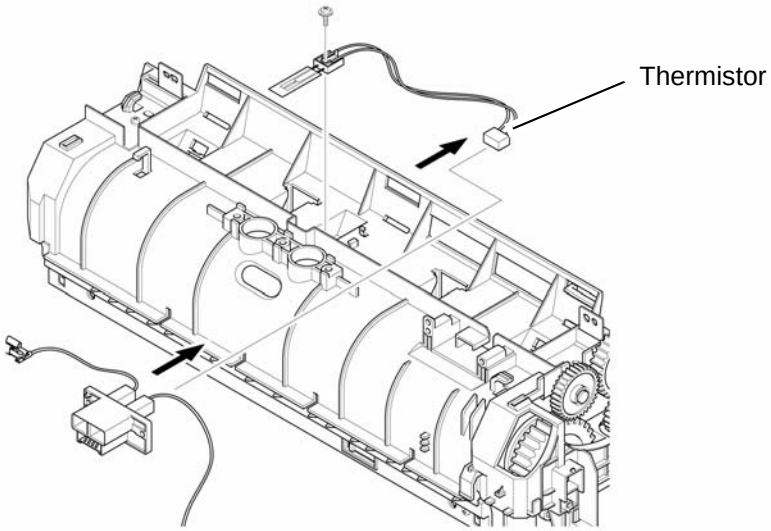

Figure 5

7. Remove the three screws securing the Idle Gear Bracket and remove it.

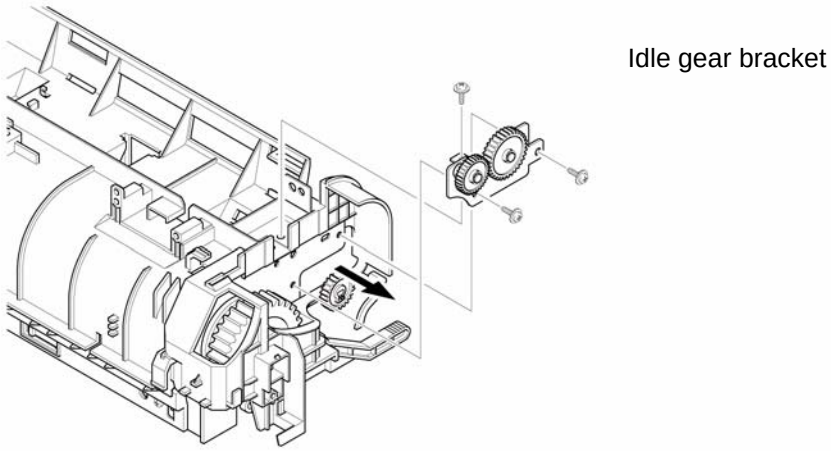

Figure 6

8. Remove the one screw securing the Fuser Cover and release the Fuser Cover from the Fuser Frame.

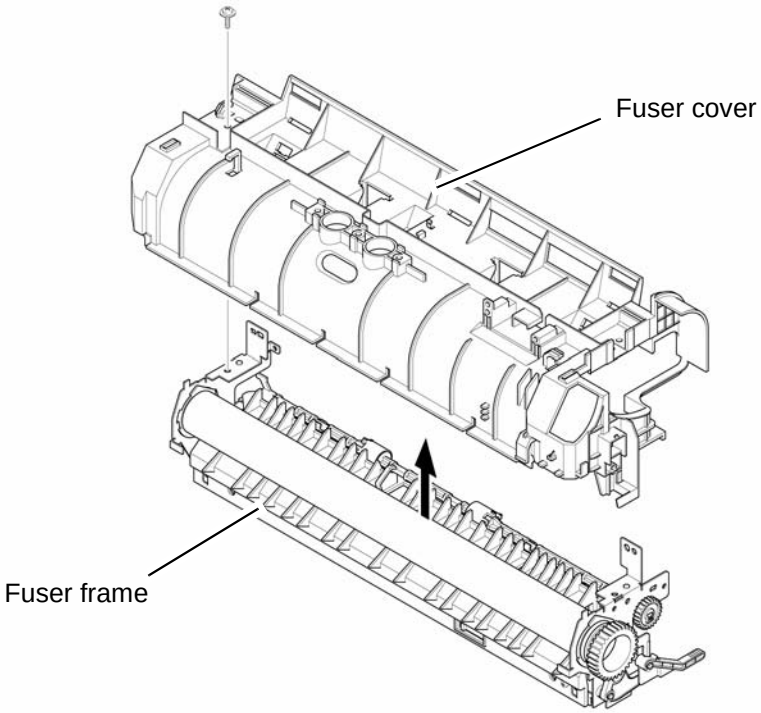

Figure 7

9. Release the Fuser Gear and HR Bush and then remove the Heat Roller, as shown below.

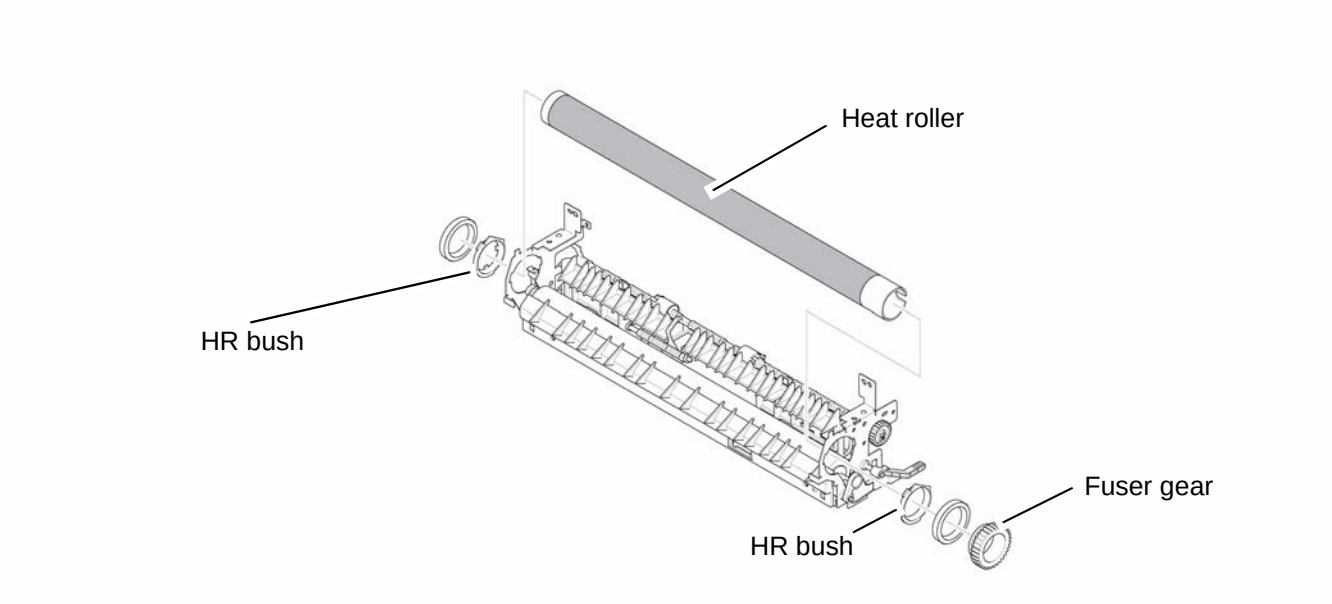

Figure 8

10. Remove the Jam Link Lever (L,R) and Jam Holder (L,R) and then remove the Pressure Roller, as shown in figures 9 and 10.

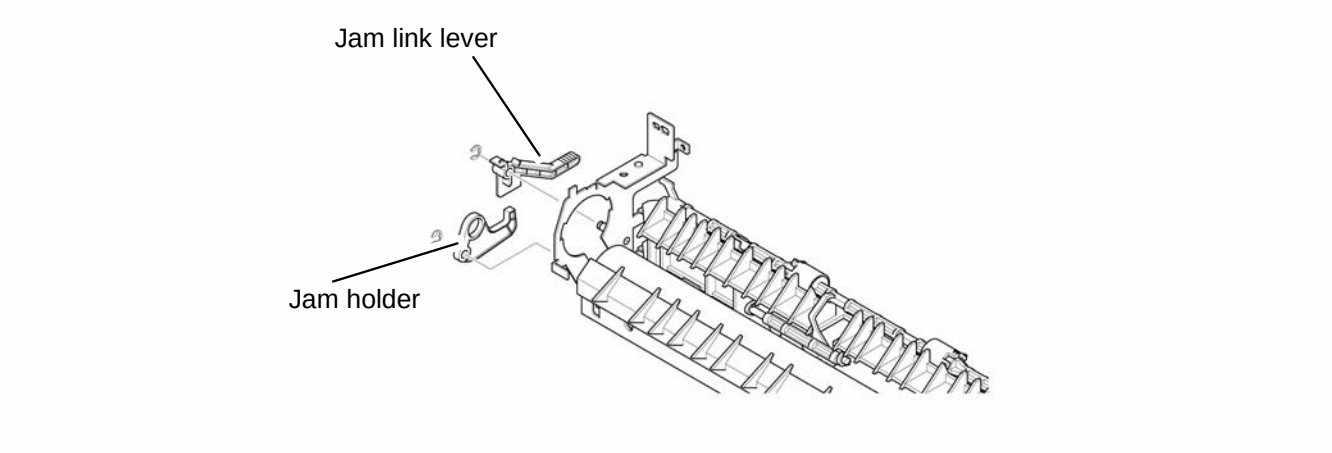

Figure 9

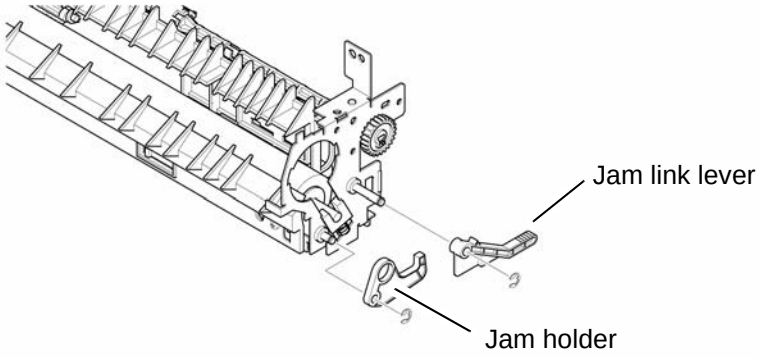

Figure 10

REP 5 Top Cover

Parts List on: PL 2

WARNING

Switch off the electricity to the machine. Disconnect the power cord from the customer supply while performing tasks that do not need electricity. Electricity can cause death or injury. Moving parts can cause injury.

1. Before removing the Top Cover, remove the:
   - Rear Cover (Left, Right), REP 3.
2. Remove the four screws securing the Top Cover, as shown below.

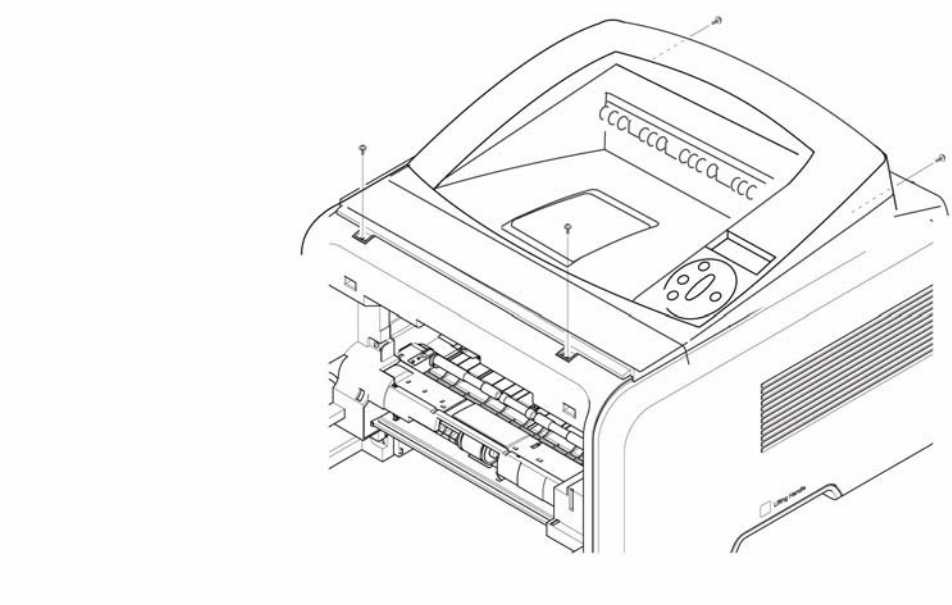

Figure 1

3. To remove the Top Cover, first lift the Top Cover with a light pressure to the direction of arrow. Then unplug the OPE Harness, as shown below.

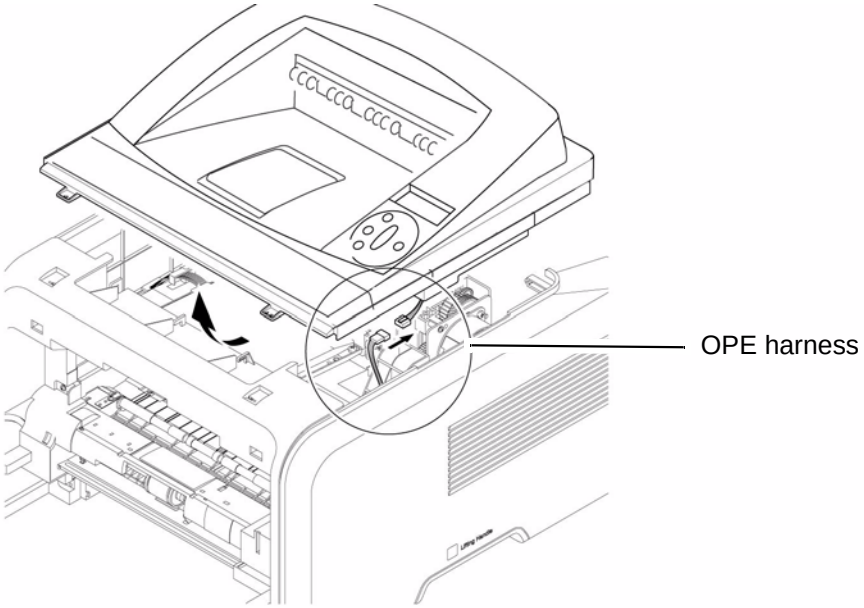

Figure 2

REP 6 OPE Unit

Parts List on: PL 5

WARNING

Switch off the electricity to the machine. Disconnect the power cord from the customer supply while performing tasks that do not need electricity. Electricity can cause death or injury. Moving parts can cause injury.

1. Remove the top cover, REP 5.
2. Remove the six screws securing the OPE PBA and LCD Panel to the Top Cover and remove it, as shown below.

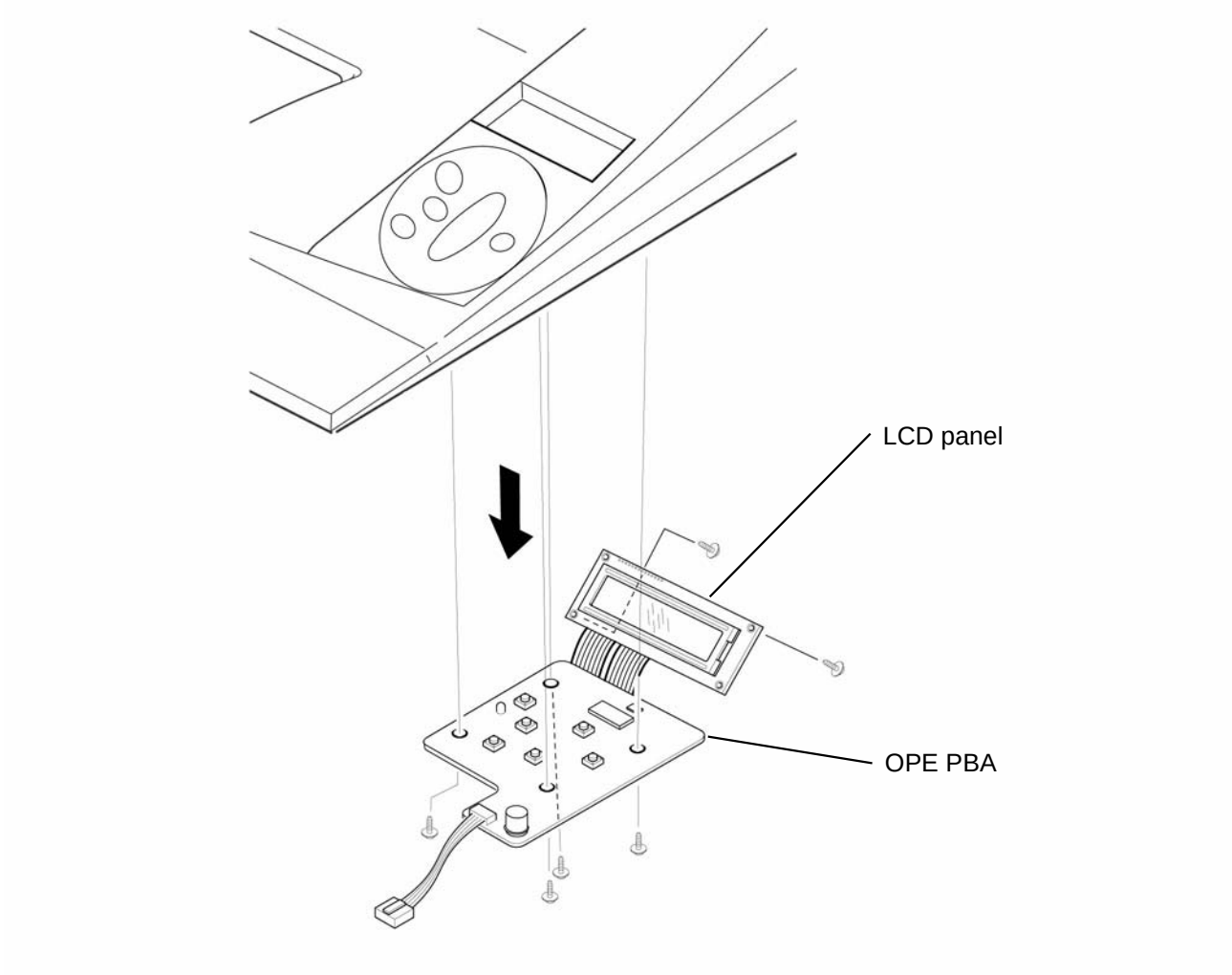

Figure 1

3. Release the key assembly.

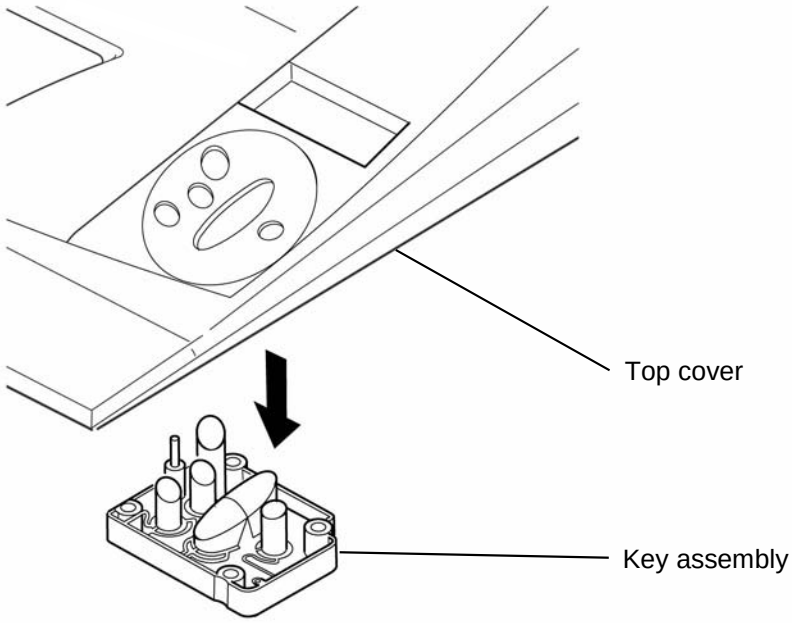

Figure 2

REP 7 Side Cover (Left, Right)

Parts List on: PL 2

WARNING

Switch off the electricity to the machine. Disconnect the power cord from the customer supply while performing tasks that do not need electricity. Electricity can cause death or injury. Moving parts can cause injury.

1. Before removing the Side Cover (Left, Right), remove the:
   - Rear Cover, REP 3.
   - Top Cover, REP 5.
2. Remove the one screw securing the Right Side Cover, as shown below.

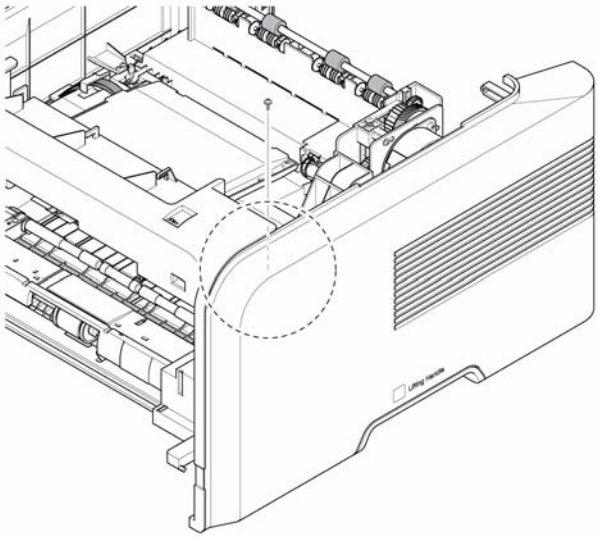

Figure 1

3. Apply light pressure to the bottom of the Right Side Cover and pull it to the right side in the direction of arrows, as shown below.

CAUTION

Be careful not to damage the hooks when remove the Side Cover (Left, Right).

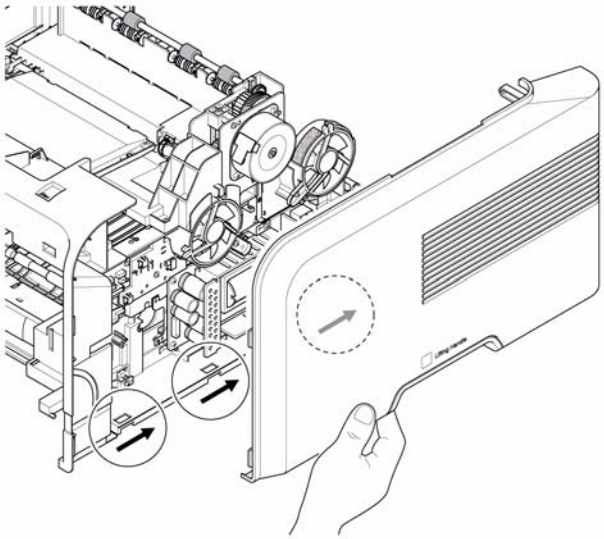

Figure 2

4. Remove the one screw securing the Left Side Cover, as shown below.

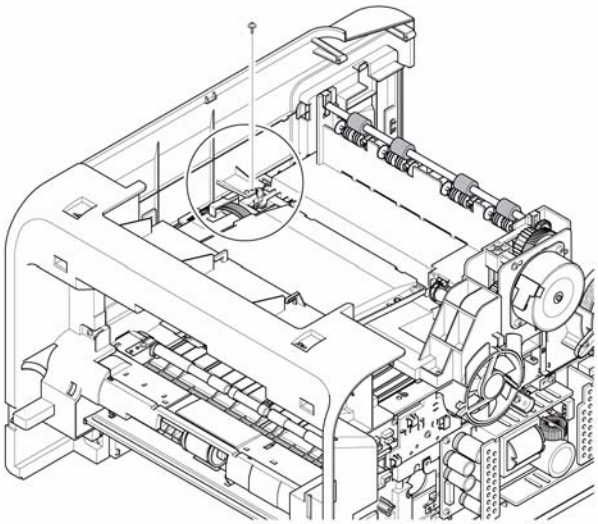

Figure 3

5. Apply light pressure to the bottom of the Left Side Cover and pull it to the left side in the direction of arrows, as shown below.

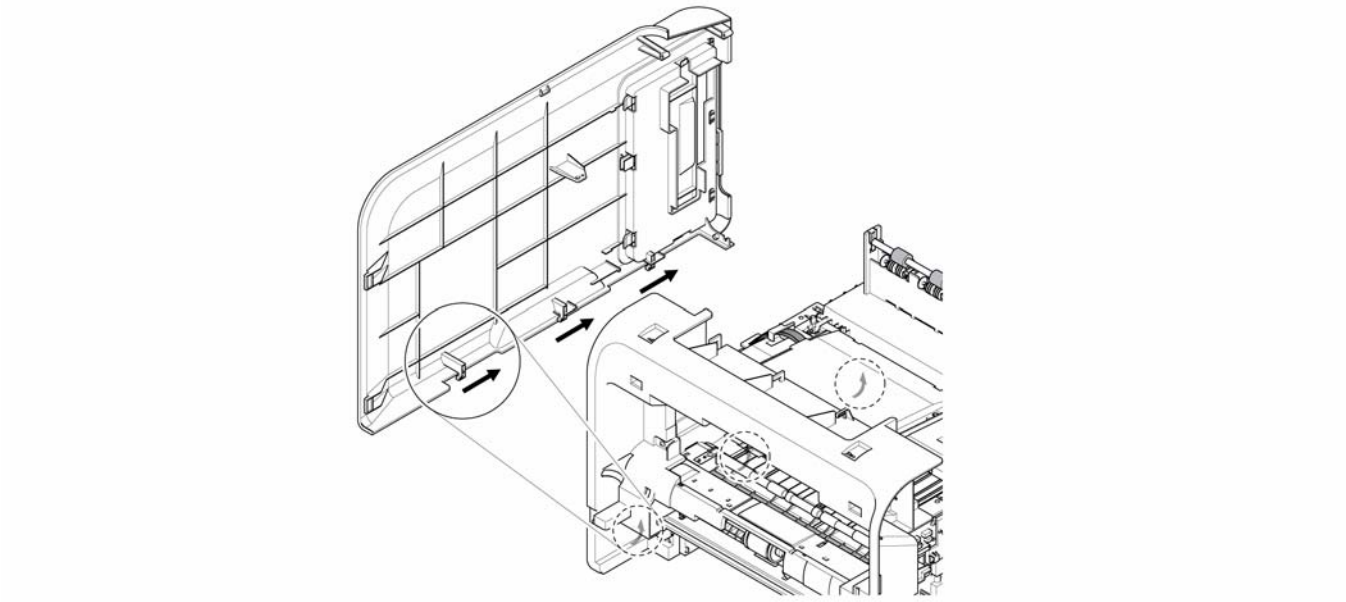

Figure 4

6. If necessary, pull the DIMM Cover in the direction of arrow and remove it, as shown below.

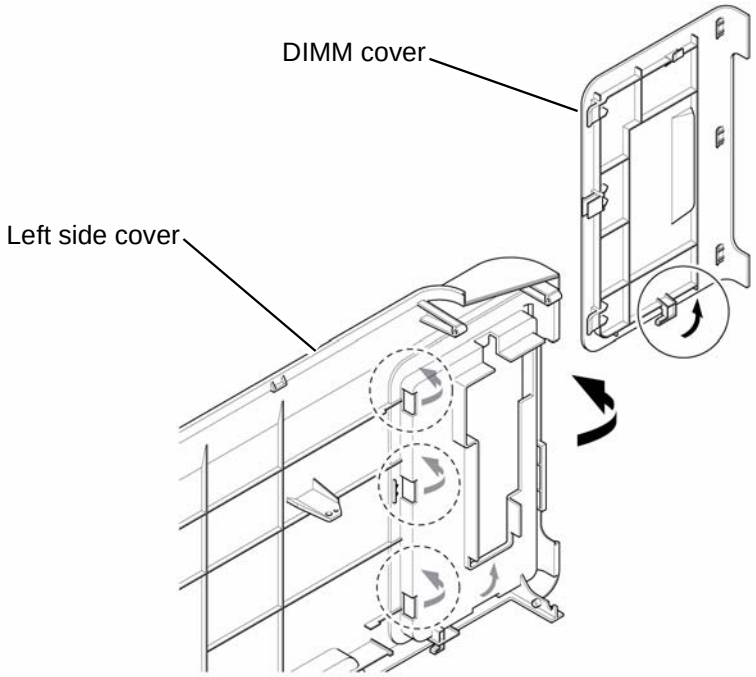

Figure 5

REP 8 Shield Controller Assembly

Parts List on: PL 1

WARNING

Switch off the electricity to the machine. Disconnect the power cord from the customer supply while performing tasks that do not need electricity. Electricity can cause death or injury. Moving parts can cause injury.

1. Before removing the Shield Controller Assembly, remove the:
   - Side Cover Left, REP 7.
2. Unplug the all connectors from the Main PBA.

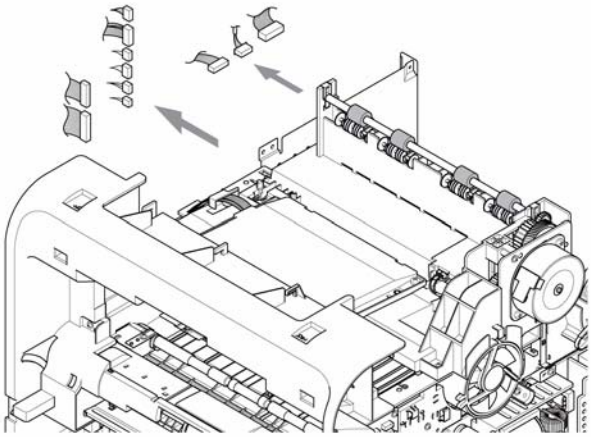

Figure 1

3. Remove the three screws securing the Shield Controller Assembly and remove it.

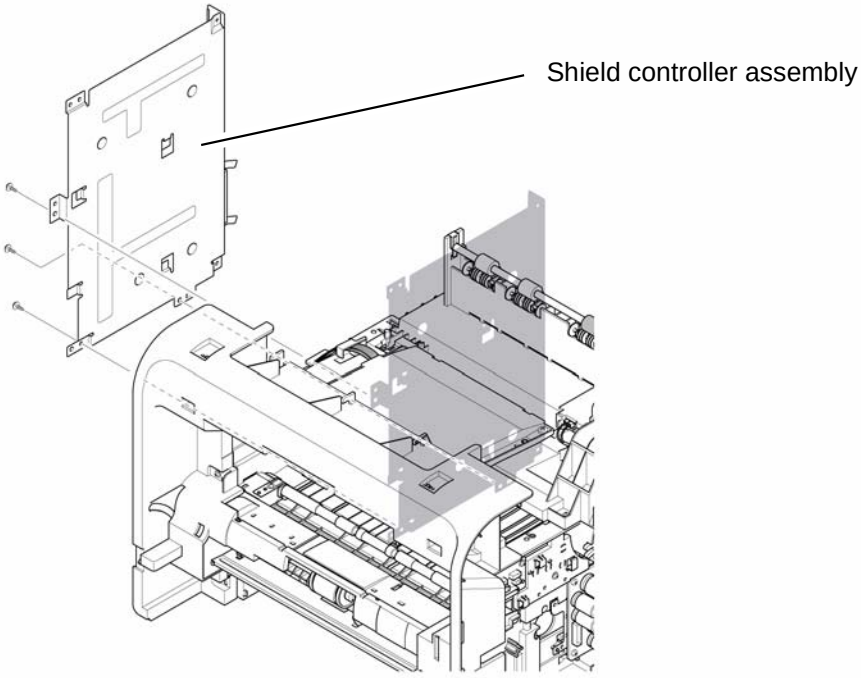

Figure 2

4. Remove the five screws securing the Main PBA to the Shield and remove it.

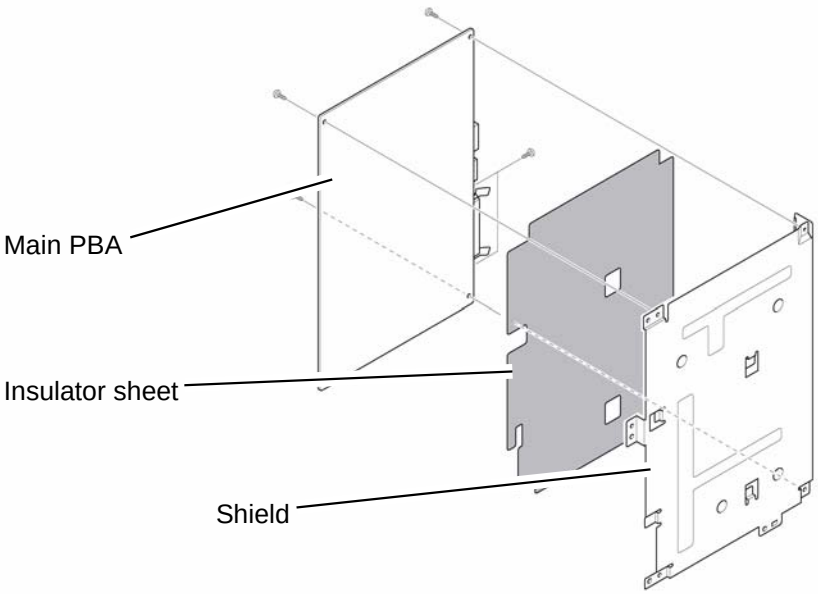

Figure 3

5. The connectors are located, as shown below.

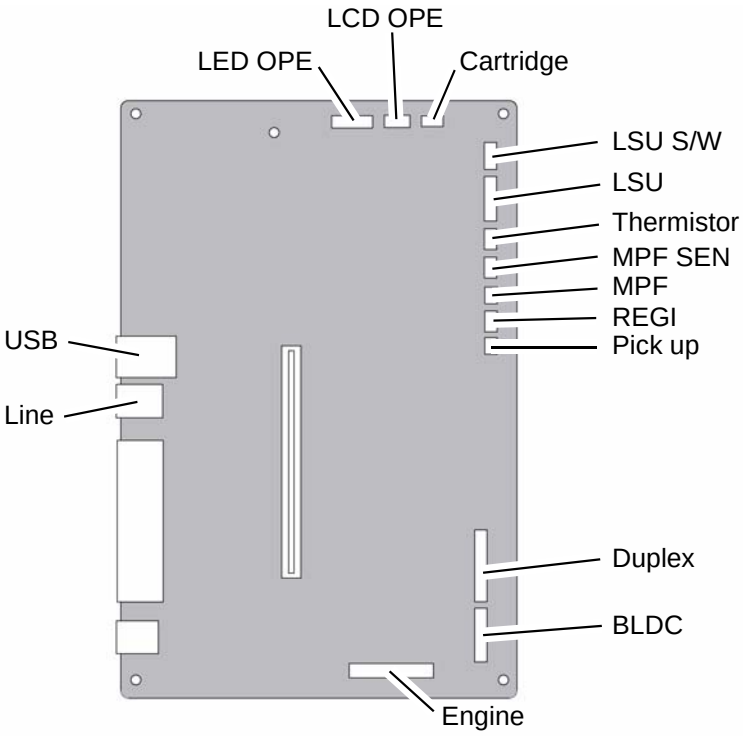

Figure 4

REP 9 Drive Assembly

Parts List on: PL 10

WARNING

Switch off the electricity to the machine. Disconnect the power cord from the customer supply while performing tasks that do not need electricity. Electricity can cause death or injury. Moving parts can cause injury.

1. Before removing the Drive Assembly, remove the:
   - Side Cover Left, REP 7.
2. Remove the six screws securing the Drive Assembly and remove it.

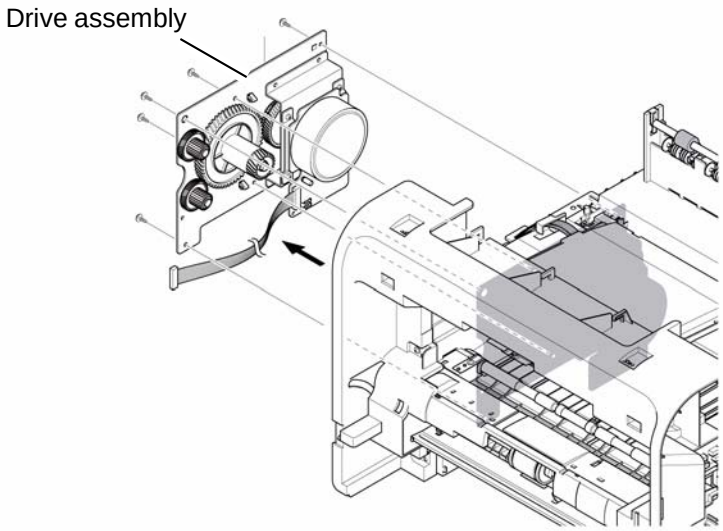

Figure 1

Note: *The six screws have numbers stamped into the Drive Assembly base plate. When refitting the Drive Assembly tighten the screws the order they are numbered. Only screws numbered 1 to 5 are fitted at this stage. Screw 6 is fitted when the Shield Controller Assembly is refitted.*

3. If necessary, remove the four screws securing the BLDC Motor Assembly and remove it.

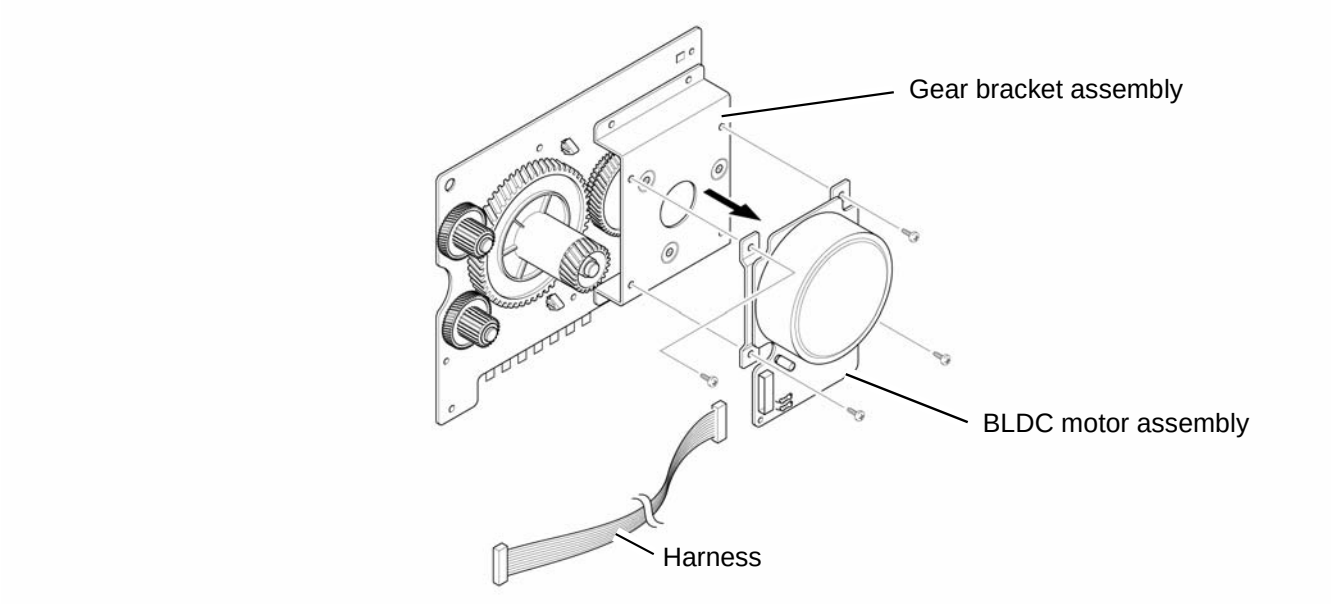

Figure 2

REP 10 Duplex Drive Assembly

Parts List on: PL 1

WARNING

Switch off the electricity to the machine. Disconnect the power cord from the customer supply while performing tasks that do not need electricity. Electricity can cause death or injury. Moving parts can cause injury.

1. Before removing the Duplex Drive Assembly, remove the:
   - Side Cover Right, REP 7.
2. Unplug the connector from the Connection PCB and remove the three screws securing the Duplex Drive Unit and remove it.

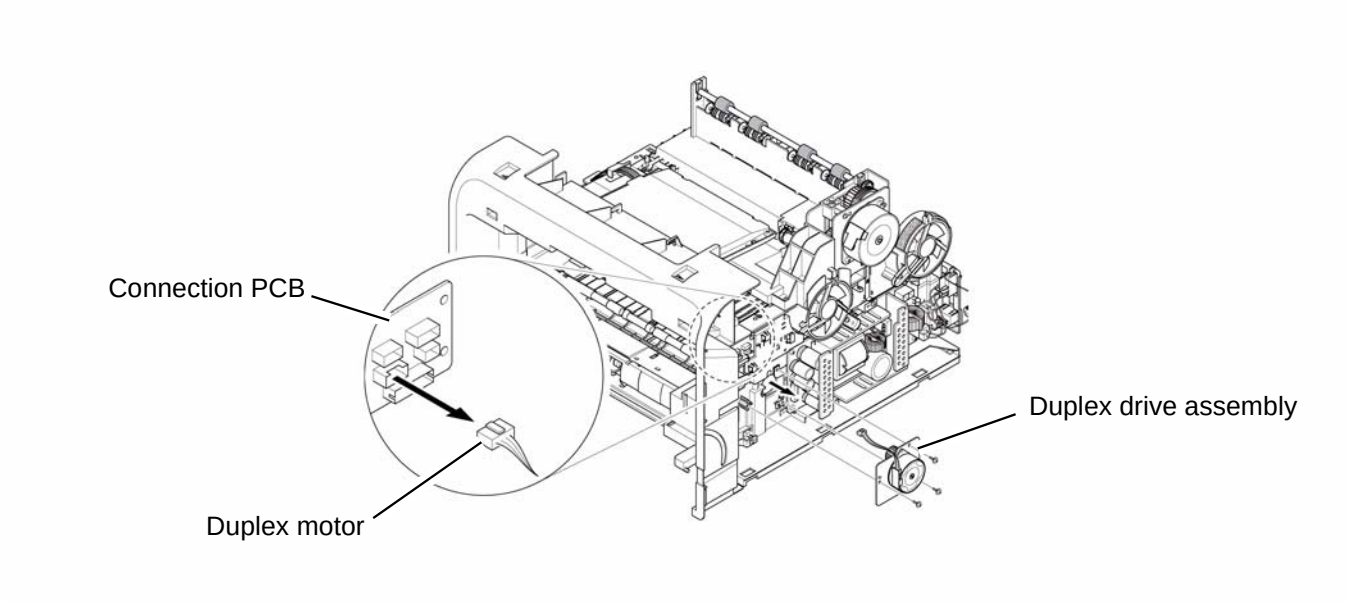

Figure 1

3. If necessary, remove the two screws securing the Duplex Motor and remove it.

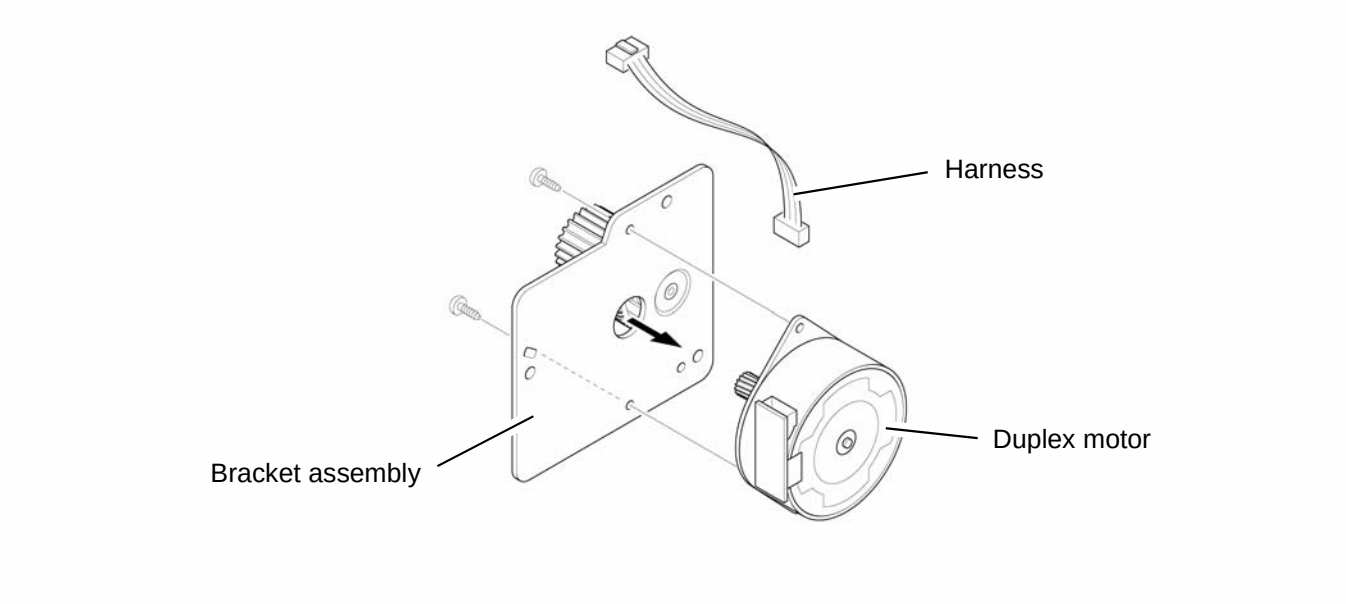

Figure 2

REP 11 Shield SMPS Assembly

Parts List on: PL 1

WARNING

Switch off the electricity to the machine. Disconnect the power cord from the customer supply while performing tasks that do not need electricity. Electricity can cause death or injury. Moving parts can cause injury.

1. Before removing the Shield SMPS Assembly, remove the:
   - Side Cover Right, REP 7.
   - Duplex Drive Assembly, REP 10.
2. Unplug the two connectors (HVPS, Fuser).

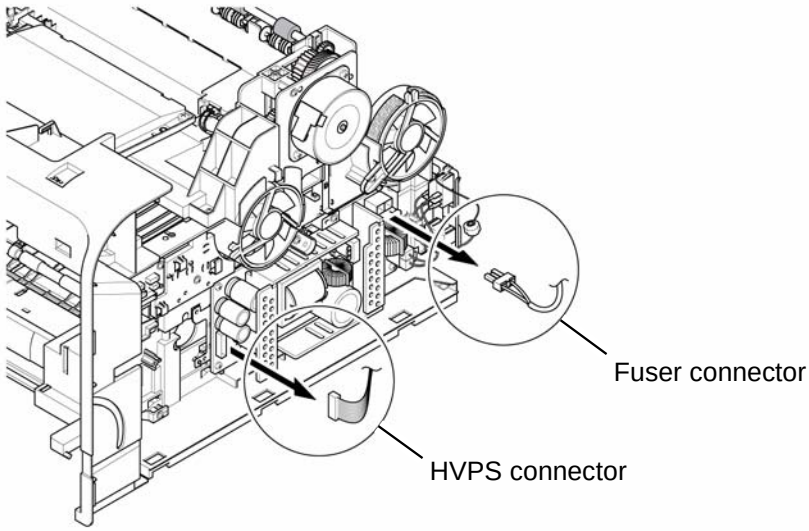

Figure 1

3. Remove the three screws securing the Shield SMPS Assembly and remove it.

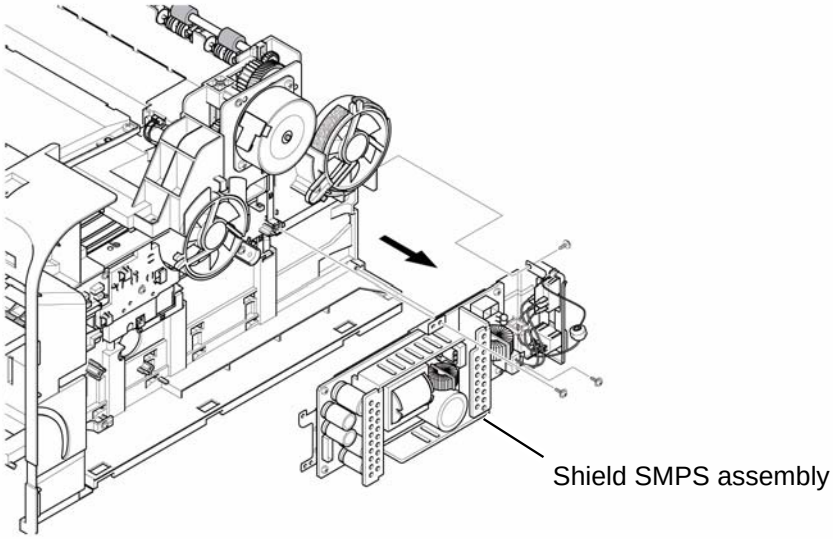

Figure 2

4. Unplug the connector (AC Inlet) and remove the four screws securing SMPS and remove it.

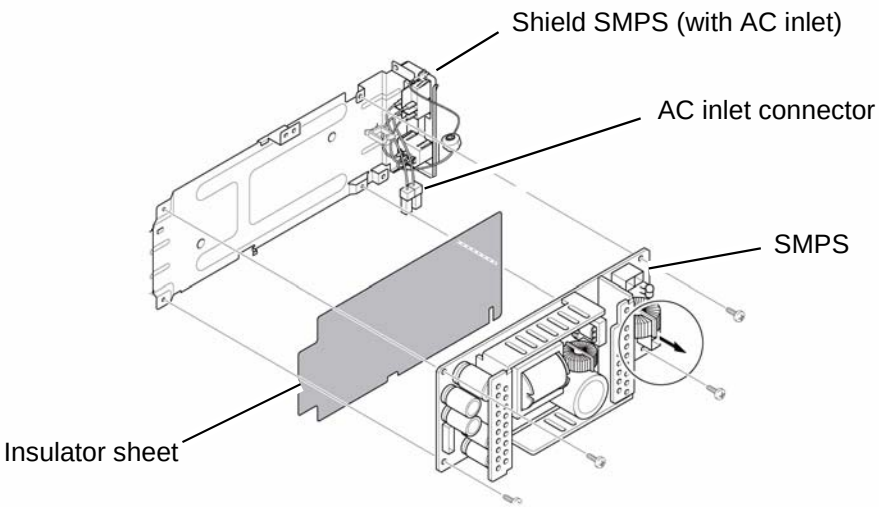

Figure 3

REP 12 Connection PCB

Parts List on: PL 8

WARNING

Switch off the electricity to the machine. Disconnect the power cord from the customer supply while performing tasks that do not need electricity. Electricity can cause death or injury. Moving parts can cause injury.

1. Before removing the Connection PCB, remove the:
   - Side Cover Right, REP 7.
2. Unplug the all connectors.

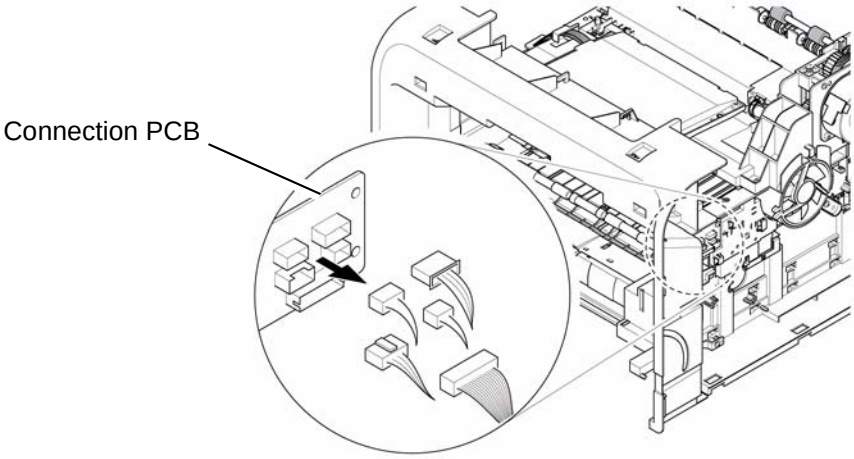

Figure 1

3. Remove the two screws securing the Connection PCB and remove it.

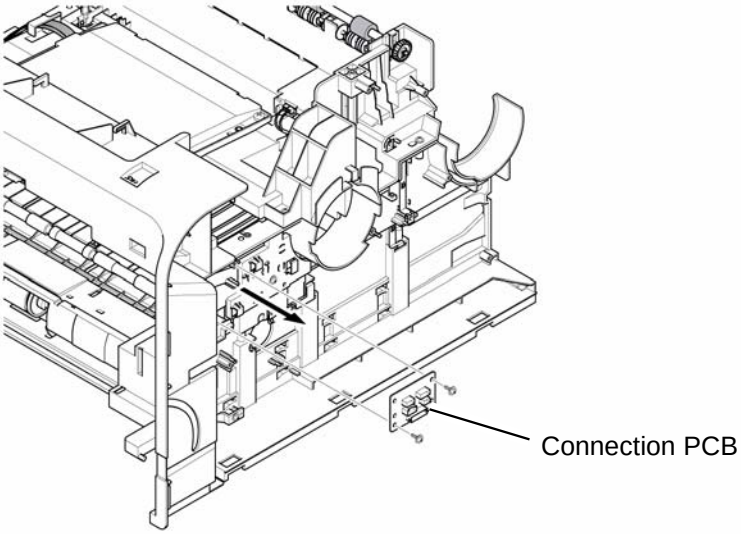

Figure 2

4. The connectors are located, as shown below.

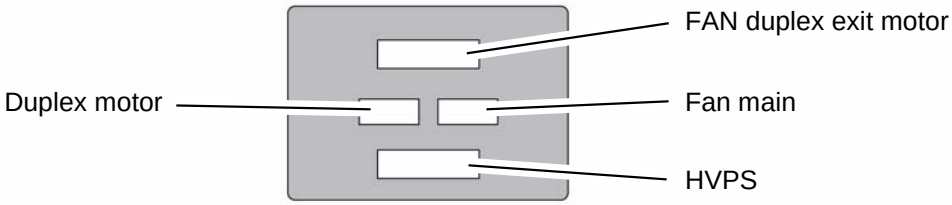

Figure 3

REP 13 Fuser Drive Assembly

Parts List on: PL 13

WARNING

Switch off the electricity to the machine. Disconnect the power cord from the customer supply while performing tasks that do not need electricity. Electricity can cause death or injury. Moving parts can cause injury.

1. Before removing the Fuser Drive Assembly, remove the:
   - Side Cover Right, REP 7.
2. Unplug the connector from the Connection PCB.

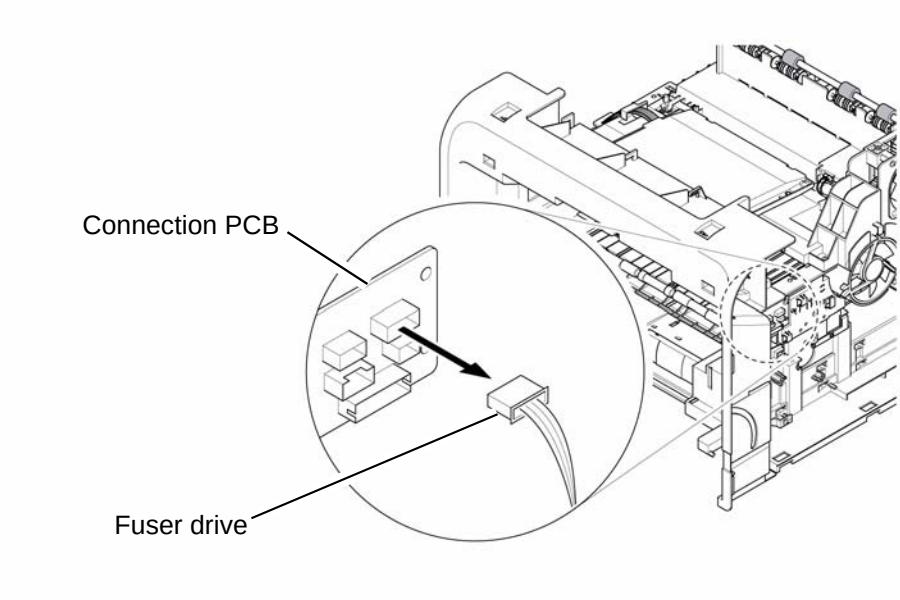

Figure 1

3. Remove the three screws securing the Fuser Drive Assembly and remove it.

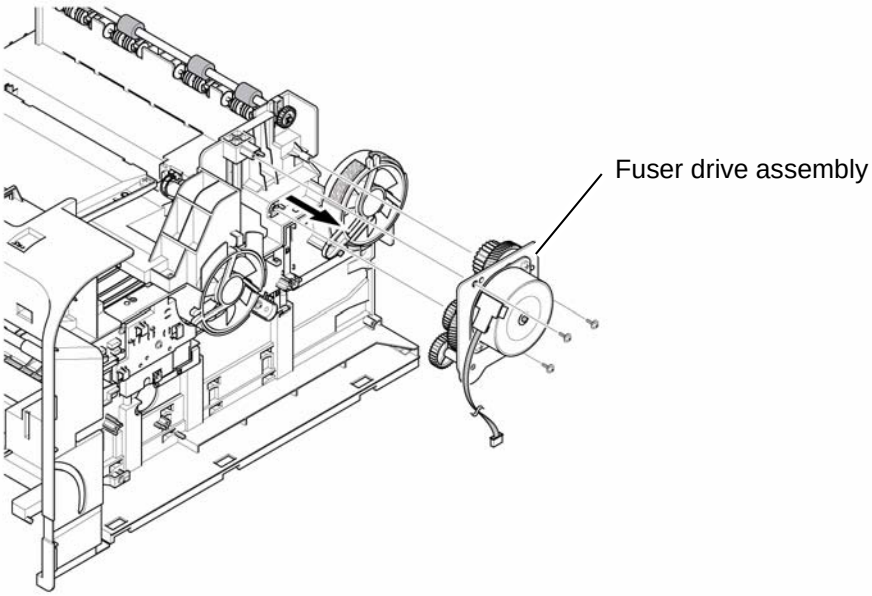

Figure 2

4. If necessary, remove the two screws securing the Step Motor and remove it.

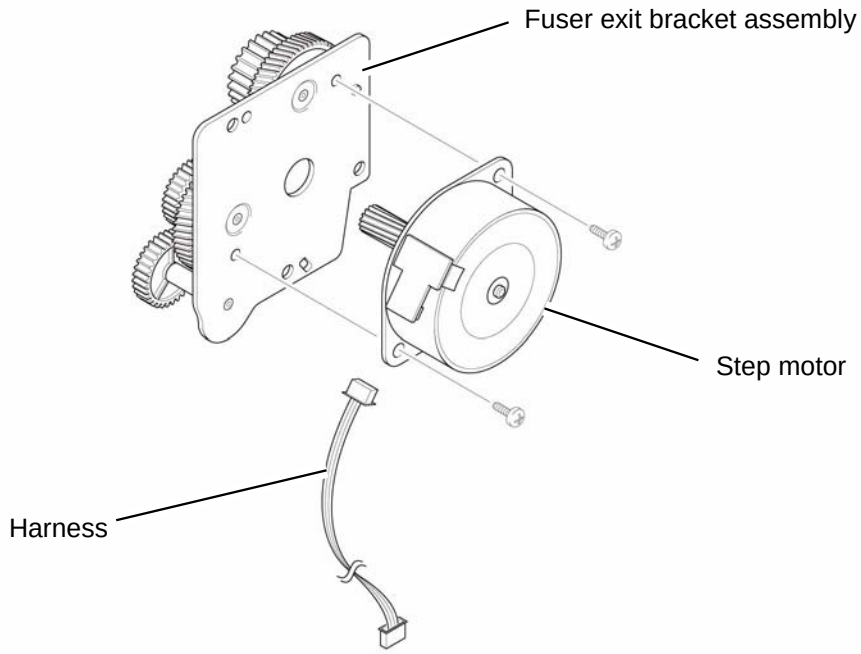

Figure 3

REP 14 Fans

Parts List on: PL 1

WARNING

Switch off the electricity to the machine. Disconnect the power cord from the customer supply while performing tasks that do not need electricity. Electricity can cause death or injury. Moving parts can cause injury.

1. Before removing the Fan, remove the:
   - Side Cover Right, REP 7.
2. Unplug the two connectors from the Connection PCB, as shown below.

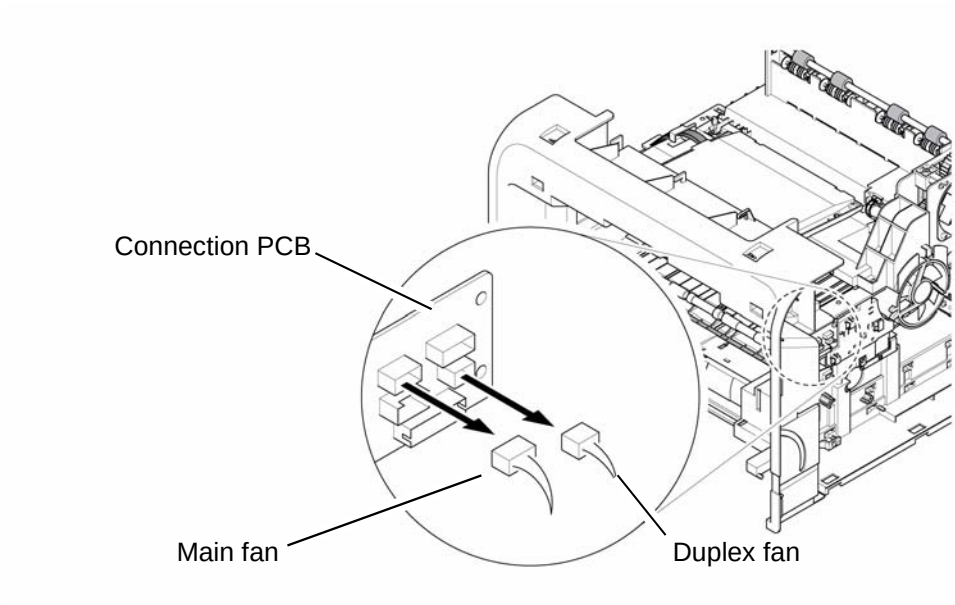

Figure 1

3. Remove the two screws securing the Fans and then pull the Fans (Main, Duplex).

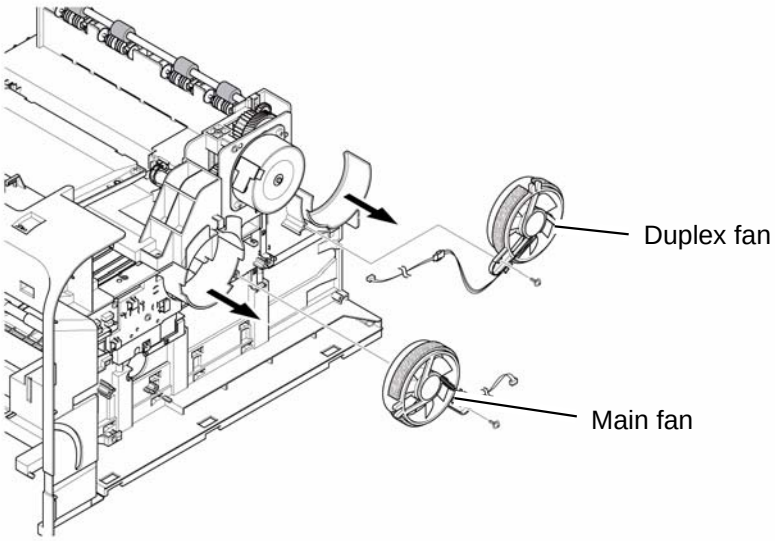

Figure 2

REP 15 Pick-up Roller Assembly

Parts List on: PL 6

WARNING

Switch off the electricity to the machine. Disconnect the power cord from the customer supply while performing tasks that do not need electricity. Electricity can cause death or injury. Moving parts can cause injury.

1. Take out the Cassette.
2. To remove the Pick Up Roller Assembly, first lift the notch attached to the Pick Up Roller Assembly from the Shaft, then slide the Pick Up Roller Assembly from left to right and it will be released completely, as shown below.

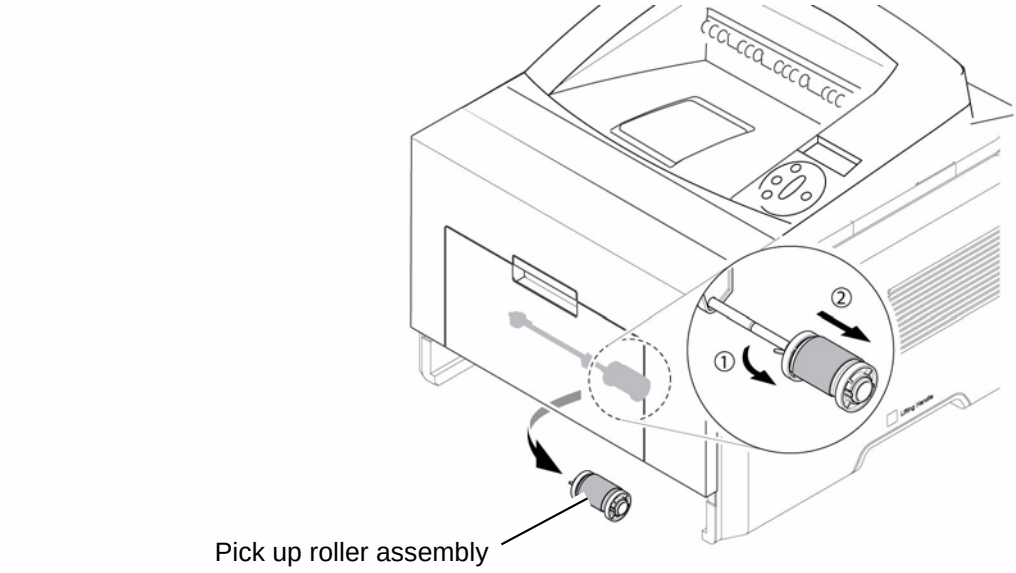

Figure 1

3. To remove the Shaft, first release the locker and slide the Shaft from left to right, then lift the notch attached to the Cam so that it's released from the Shaft. Then release the Bush from the Shaft and remove the Shaft from the Duplex Guide Housing, as shown in Figure 2.

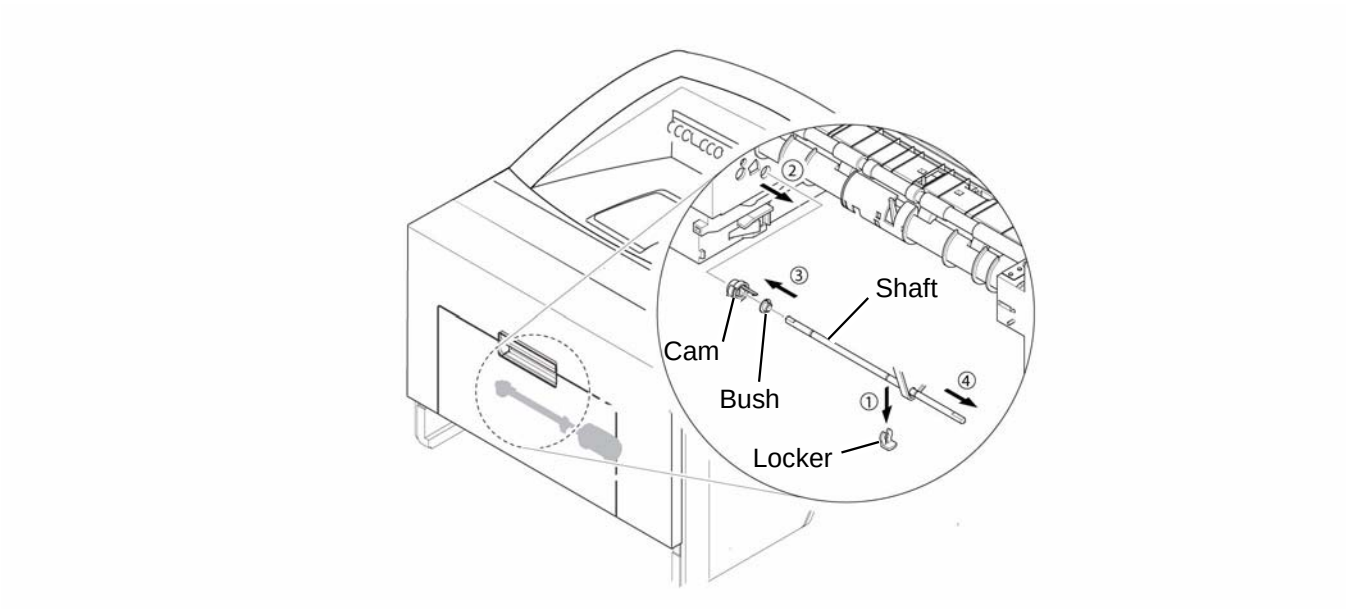

Figure 2

REP 16 Duplex Guide Housing (With Feed Roller)

Parts List on: PL 6

WARNING

Switch off the electricity to the machine. Disconnect the power cord from the customer supply while performing tasks that do not need electricity. Electricity can cause death or injury. Moving parts can cause injury.

1. Before removing the Duplex Guide Housing, remove the:
   - Pick Up Roller Assembly, REP 15.
2. Remove the two screws securing the Duplex Guide Housing.

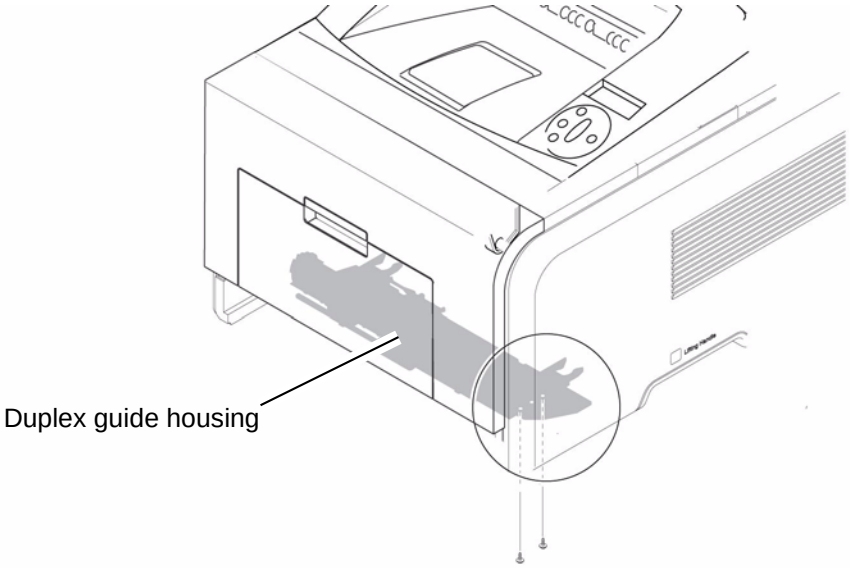

Figure 1

3. Unplug the one connector (Photo Interrupter) and remove the Duplex Guide Housing (with Feed Roller), as shown below.

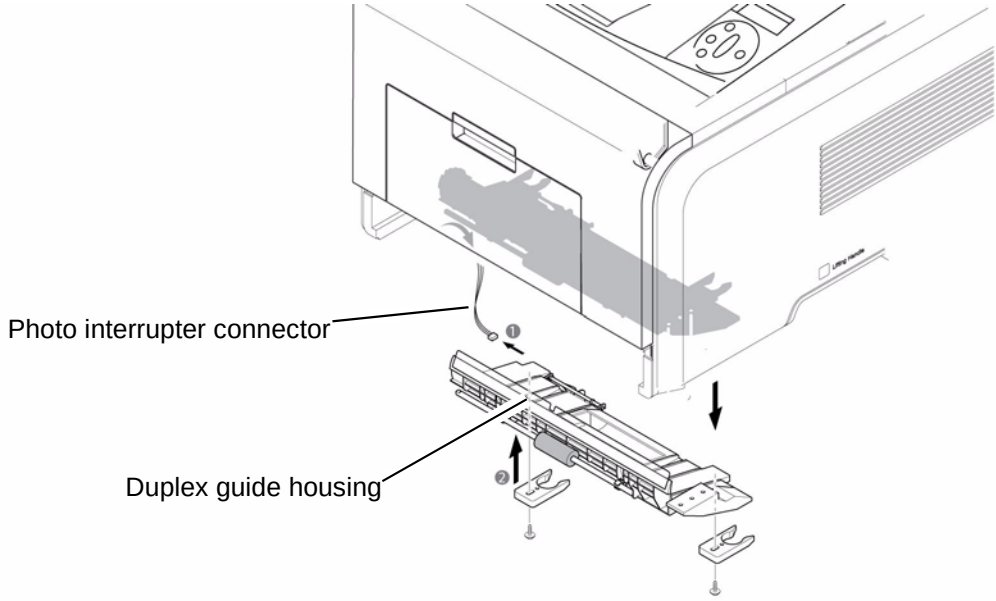

Figure 2

4. Pull the Feed Roller from the Bushing.

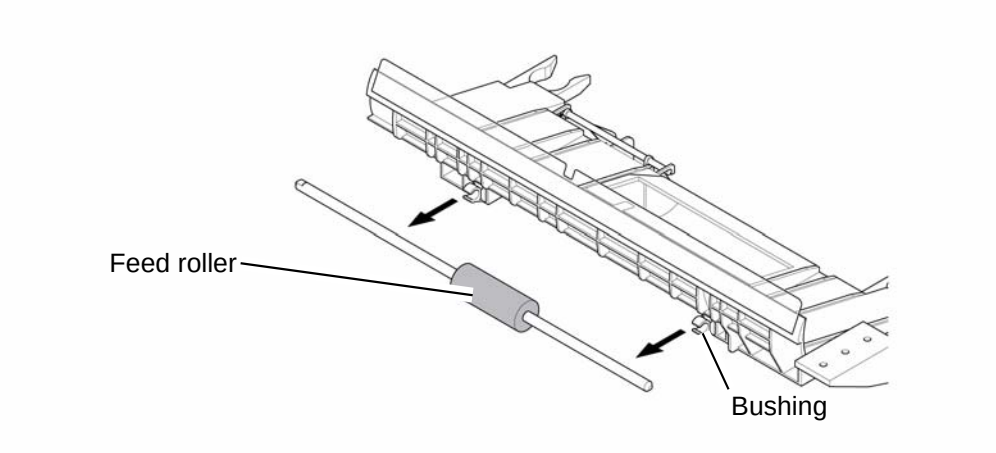

Figure 3

REP 17 HVPS Housing

Parts List on: PL 6

WARNING

Switch off the electricity to the machine. Disconnect the power cord from the customer supply while performing tasks that do not need electricity. Electricity can cause death or injury. Moving parts can cause injury.

1. Before removing the HVPS Housing, remove the:
   -Duplex Drive Assembly, REP 10.
   -Unplug the HVPS Connector, REP 11.
   -Pick Up Roller Assembly, REP 15.
   -Duplex Guide Housing, REP 16.
2. Remove the eight screws securing the HVPS Housing, as shown below.

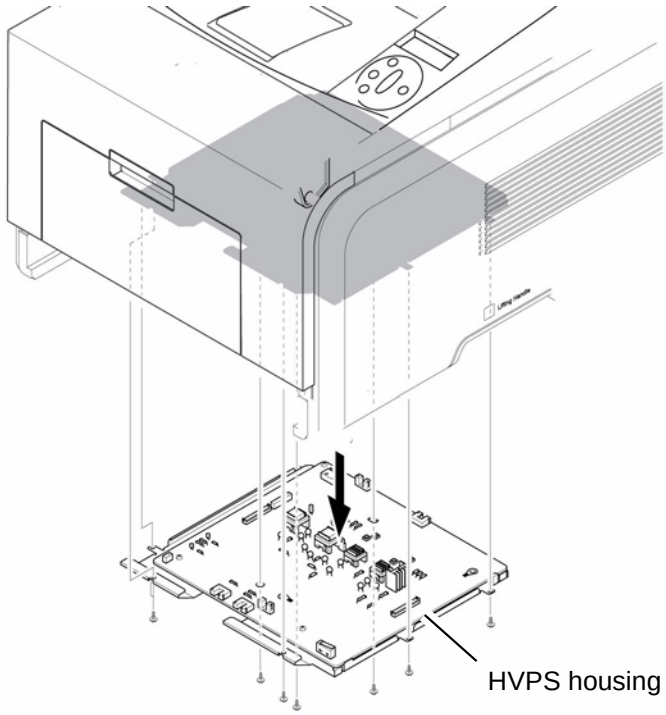

Figure 1

3. Unplug the connector for connector PBA and SMPS first. Unplug the other Connections.

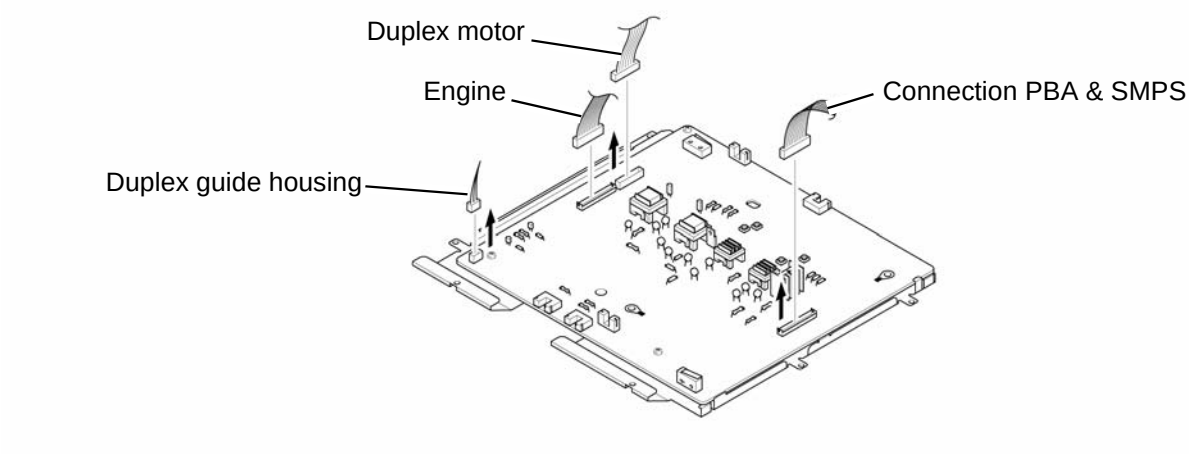

Figure 2

4. If necessary, remove the three screws securing the HVPS and remove it.

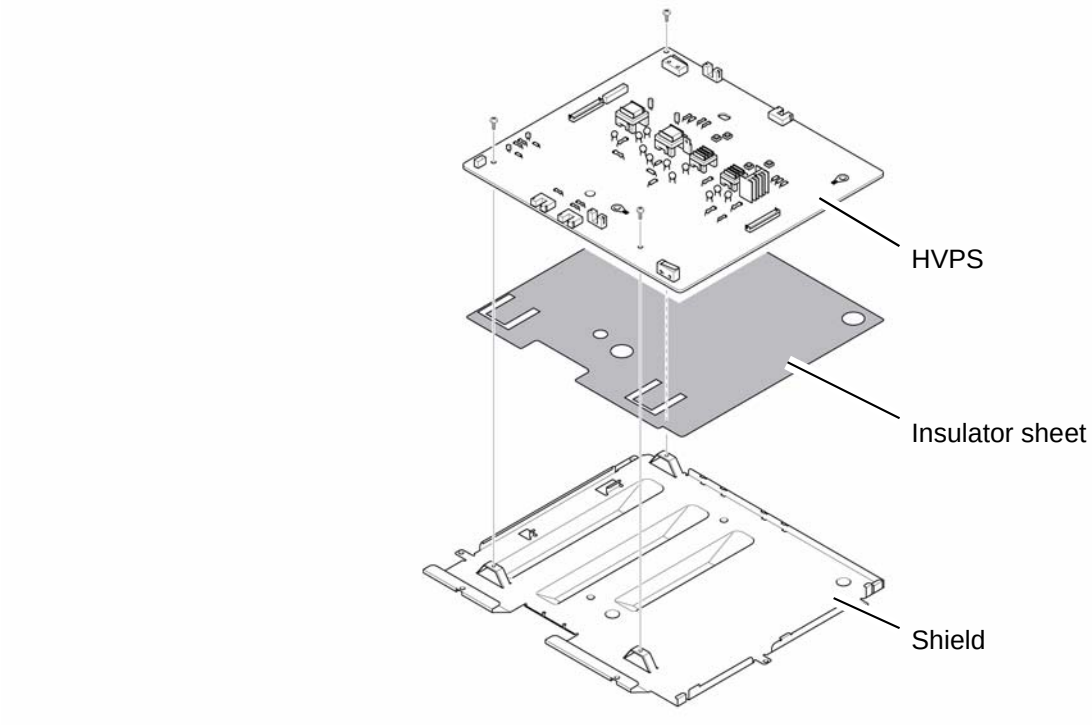

Figure 3

REP 18 Cover Mid Front

Parts List on: PL 2

WARNING

Switch off the electricity to the machine. Disconnect the power cord from the customer supply while performing tasks that do not need electricity. Electricity can cause death or injury. Moving parts can cause injury.

1. Before removing the Cover Mid Front, remove the:
   -Top Cover, REP 5.
   -Side Cover, REP 7.
2. Remove the six screws securing the Cover Mid Front and release two hooks in the centre.

CAUTION

This cover is fragile take care when removing it

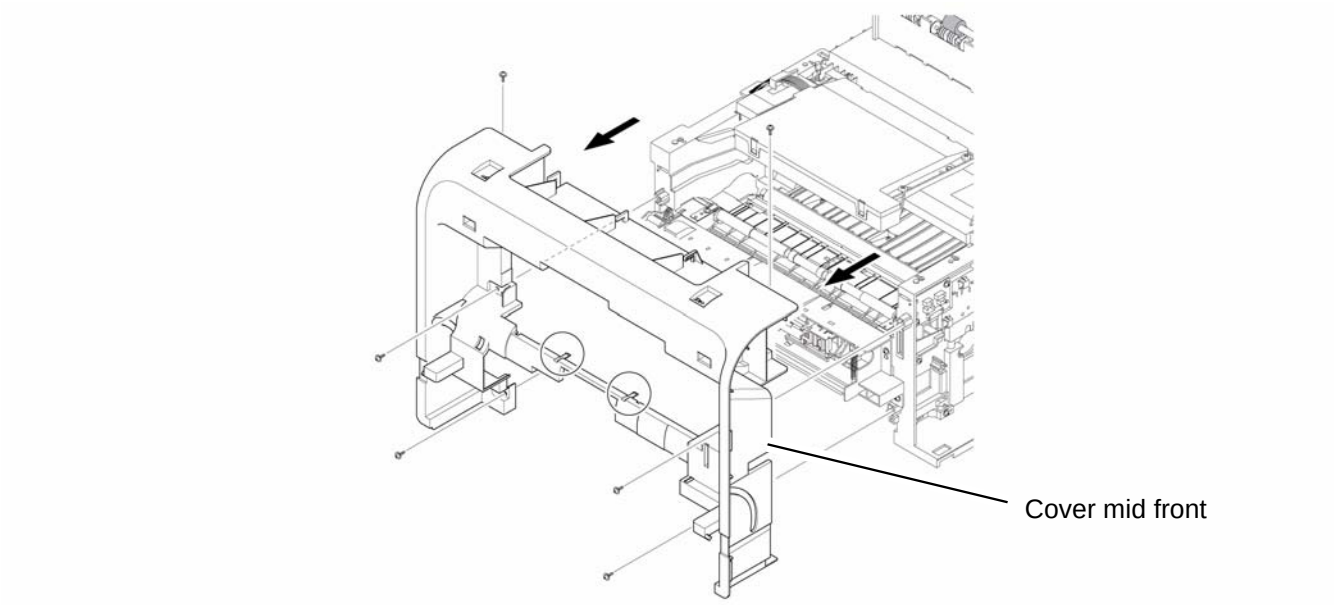

Figure 1

REP 19 MPF Housing

Parts List on: PL 9

WARNING

Switch off the electricity to the machine. Disconnect the power cord from the customer supply while performing tasks that do not need electricity. Electricity can cause death or injury. Moving parts can cause injury.

1. Before removing the MPF Housing, remove the:
   -Cover Mid Front, REP 18.
2. Remove the four screws securing the MPF Housing and remove it.

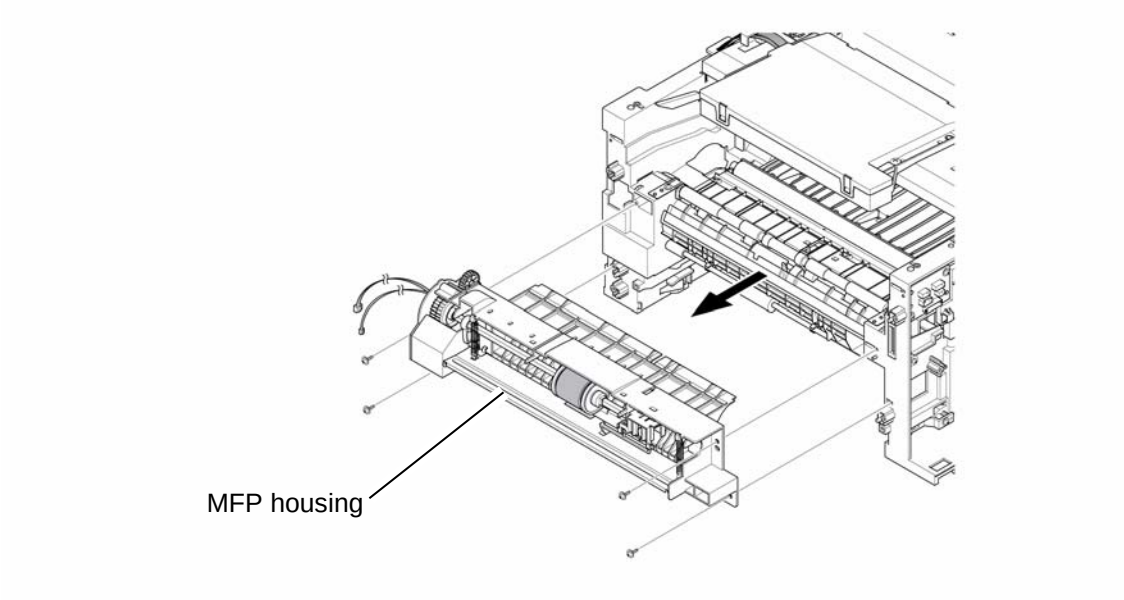

Figure 1

3. To remove the MP Pick Up Assembly, first lift the notch attached to the left side Stopper so that it's slide the right to left from the Shaft, then left side Idler slid the right to left from the Shaft and take out the MP Pick Up Assembly, as shown below.

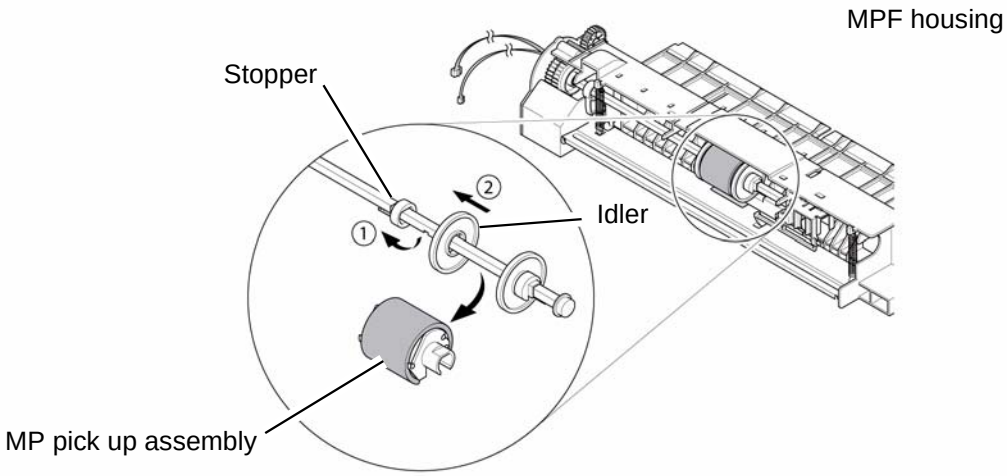

Figure 2

REP 20 Feed Roller Parts

Parts List on: PL 6 and PL 7

WARNING

Switch off the electricity to the machine. Disconnect the power cord from the customer supply while performing tasks that do not need electricity. Electricity can cause death or injury. Moving parts can cause injury.

1. Before removing the Feed Roller Parts, remove the:
   -Pick Up Roller Assembly, REP 15.
   -Duplex Guide Housing, REP 16.
   -Cover Mid Front, REP 18.
   -MPF Housing, REP 19.
2. Remove the two screws securing the both side of the Guide Paper and then remove the Guides.

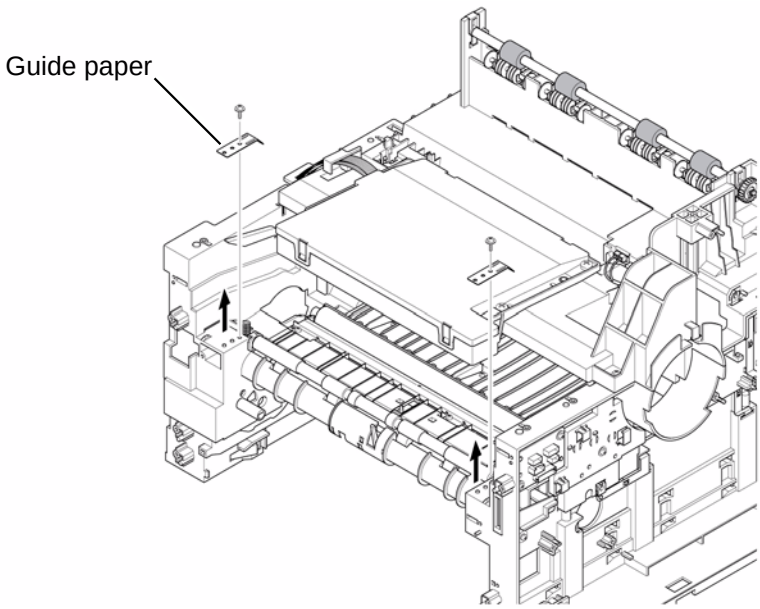

Figure 1

3. Pull up the Feed Idle Shaft and the Bushes (with Spring).

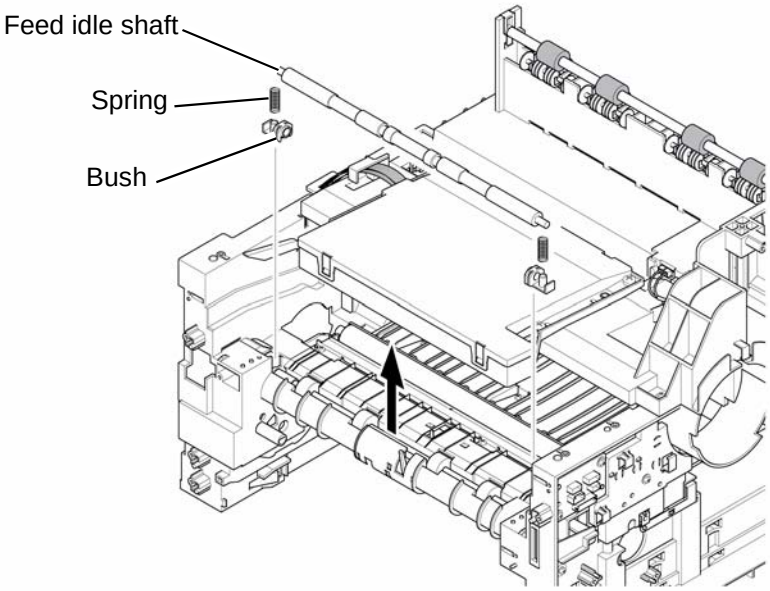

Figure 2

4. Release the E-Ring securing the Feed 2 Gear and remove it.

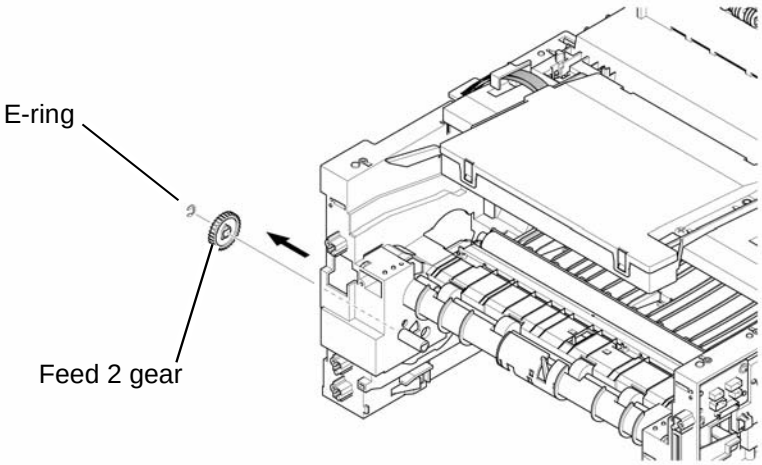

Figure 3

5. Remove the three screws securing the Feed Bracket Unit and then remove the Feed Bracket Unit and Feed 2 Shaft.

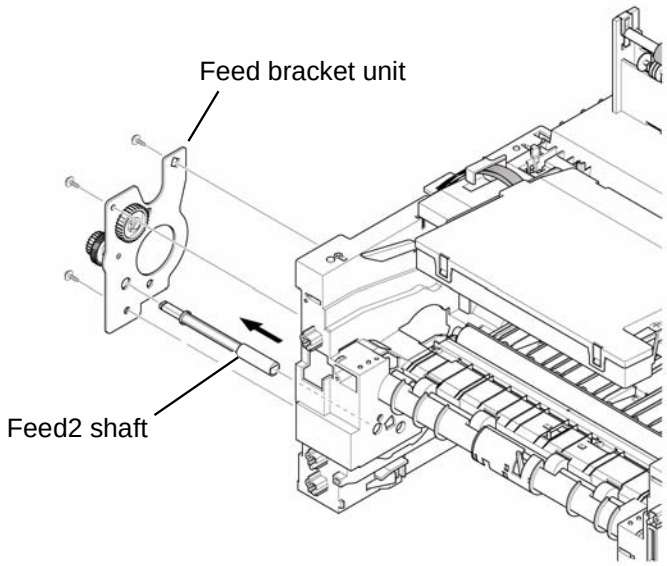

Figure 4

6. If necessary, release the three E-Rings. Pull up the Feed 1 Roller from the Bushing, as the Gears (T2 Idle, Retard, Idle) and then remove the Gears from the Feed Bracket, as shown below.

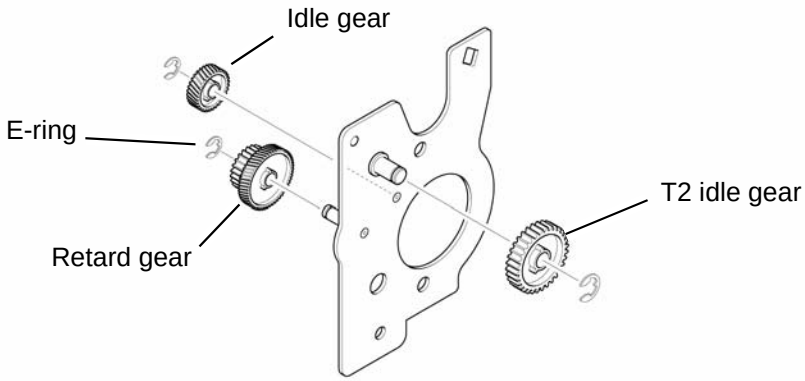

Figure 5

7. Remove the Clutch Unit, as shown below.

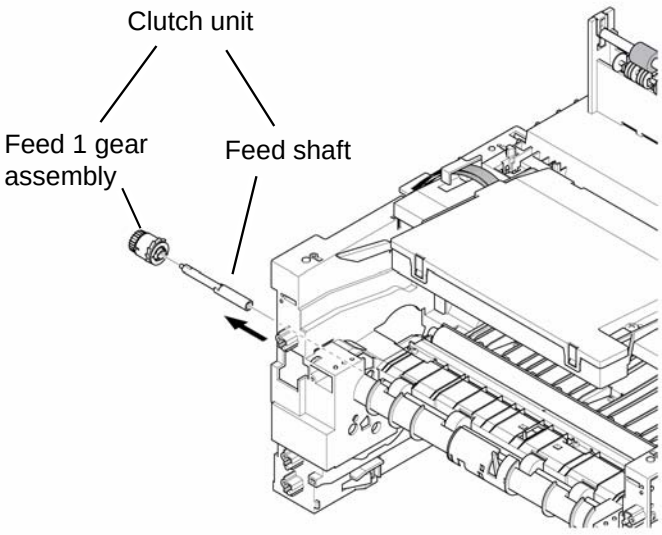

Figure 6

8. Pull up the Feed 1 Roller from the Bushing, as shown below.

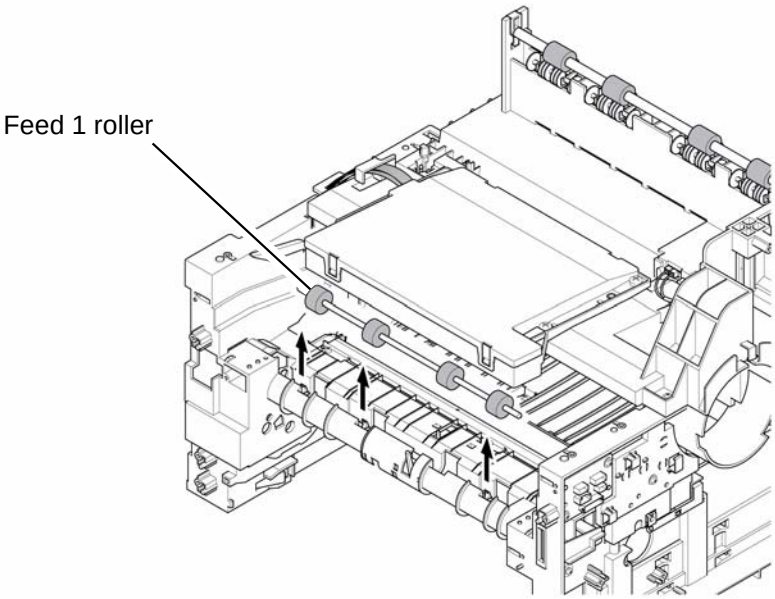

Figure 7

REP 21 Pick Up Gear Assembly & Solenoids

Parts List on: PL 6

WARNING

Switch off the electricity to the machine. Disconnect the power cord from the customer supply while performing tasks that do not need electricity. Electricity can cause death or injury. Moving parts can cause injury.

1. Before removing the Pick Up Gear Assembly & Solenoids, remove the:
   -Duplex Guide Housing, REP 16.
   -Feed Bracket Unit REP 20.
2. Release the Pick Up Gear Assembly and Pick Up Gear Shaft, as shown below.

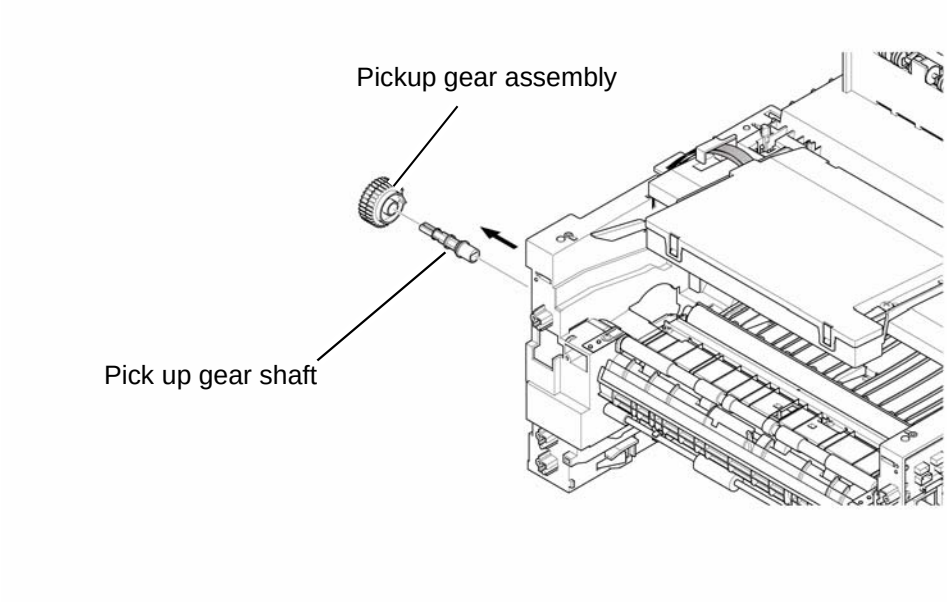

Figure 1

3. Remove the two screws securing the Manual Solenoid and Feed Solenoid and then remove the Solenoids, as shown below.

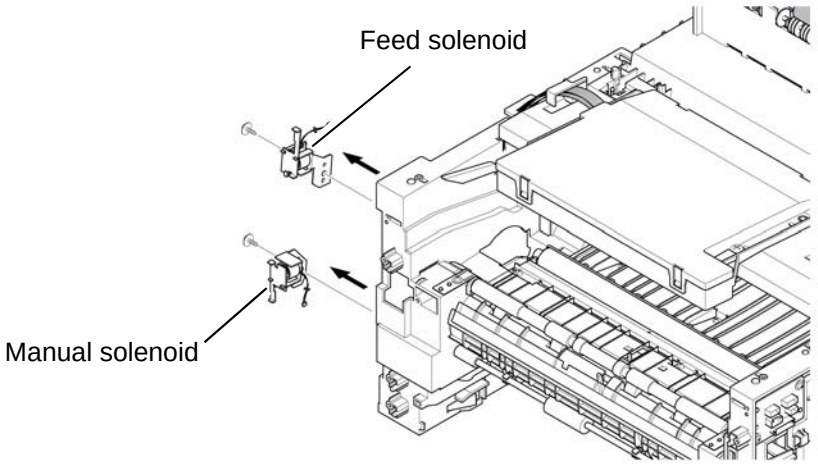

Figure 2

REP 22 Exit Roller

Parts List on: PL 7

WARNING

Switch off the electricity to the machine. Disconnect the power cord from the customer supply while performing tasks that do not need electricity. Electricity can cause death or injury. Moving parts can cause injury.

1. Before removing the Exit Roller, you remove the:
   -Top Cover, REP 5.
   -Side Cover, REP 7.
   -Fuser Drive Assembly, REP 13.
2. Remove the Exit Gear, and release the Bearing at one end then remove the Roller Exit F/Down and Exit Roller Rack, as shown below.

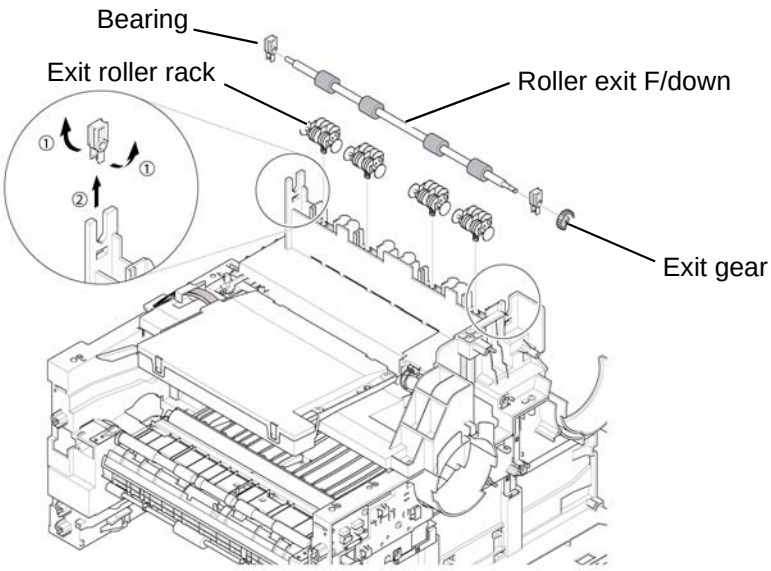

Figure 1

REP 23 LSU

Parts List on: PL 1

WARNING

Switch off the electricity to the machine. Disconnect the power cord from the customer supply while performing tasks that do not need electricity. Electricity can cause death or injury. Moving parts can cause injury.

WARNING

Avoid exposure to laser beam. Invisible laser radiation.

1. Before removing the LSU, remove the:
   -Top Cover, REP 5.
   -Side Cover, REP 7.
2. Remove the four screws securing the LSU and remove it.

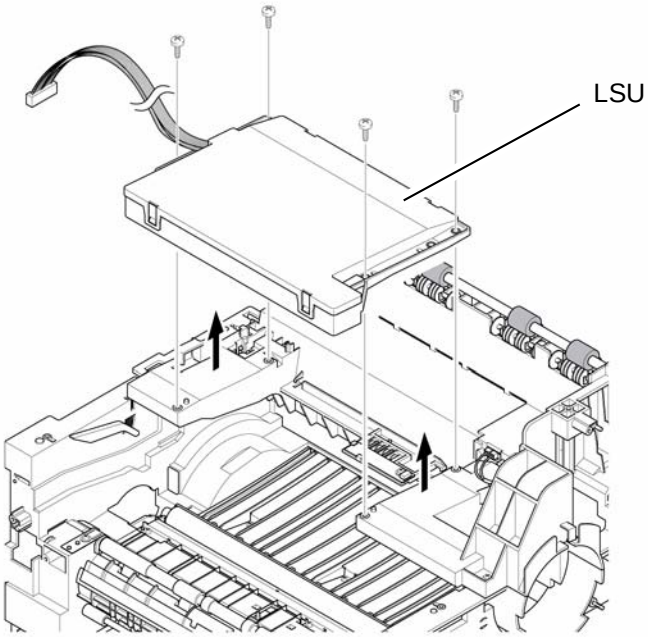

Figure 1

REP 24 Terminal

Parts List on: PL 7

WARNING

Switch off the electricity to the machine. Disconnect the power cord from the customer supply while performing tasks that do not need electricity. Electricity can cause death or injury. Moving parts can cause injury.

1. Before removing the CRUM 2 PBA, remove the:
   -Top Cover, REP 5.
   -Side Cover, REP 7.
   -LSU, REP 23.
2. Remove the one screw securing the CRUM 2 PBA and remove it and then release the four Terminals, as shown below.

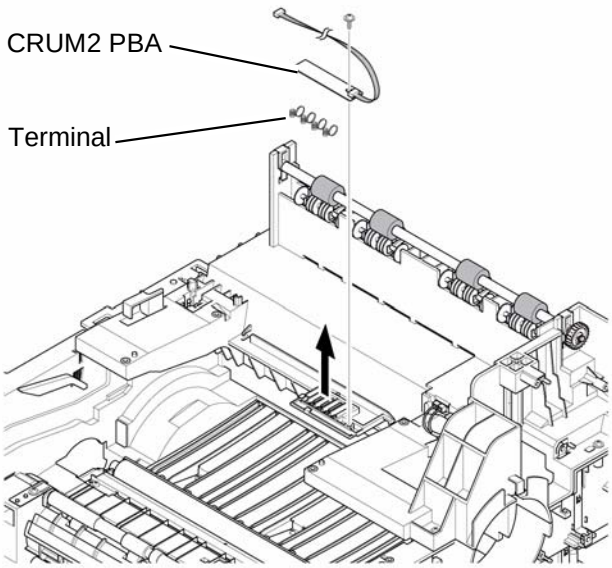

Figure 1

Note: *Be aware of the Terminals to ensure they are not lost.*

REP 25 Transfer Roller Parts

Parts List on: PL 8

WARNING

Switch off the electricity to the machine. Disconnect the power cord from the customer supply while performing tasks that do not need electricity. Electricity can cause death or injury. Moving parts can cause injury.

1. Before removing the Transfer Roller Parts, remove the:
   -Cover Mid Front, REP 18.
   -LSU, REP 23.
2. Remove the three screws securing the Transfer Earth and remove it.

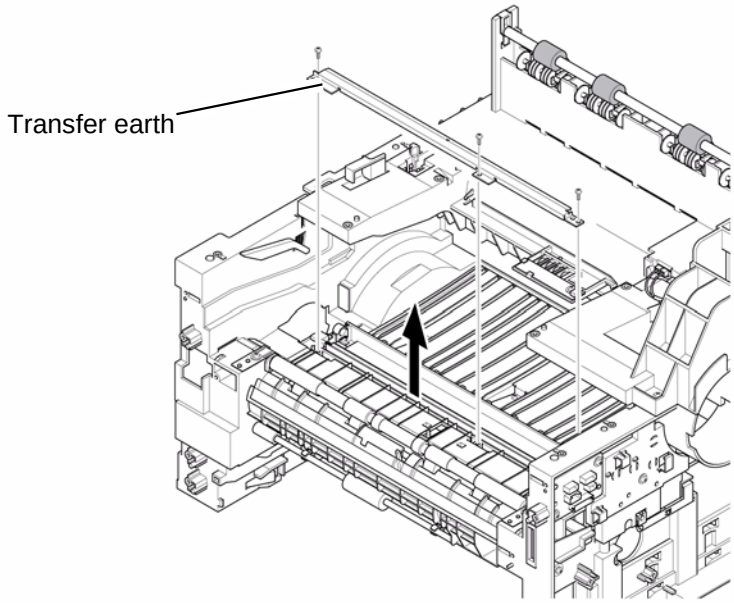

Figure 1

3. Release the PTL Holder, as shown below.

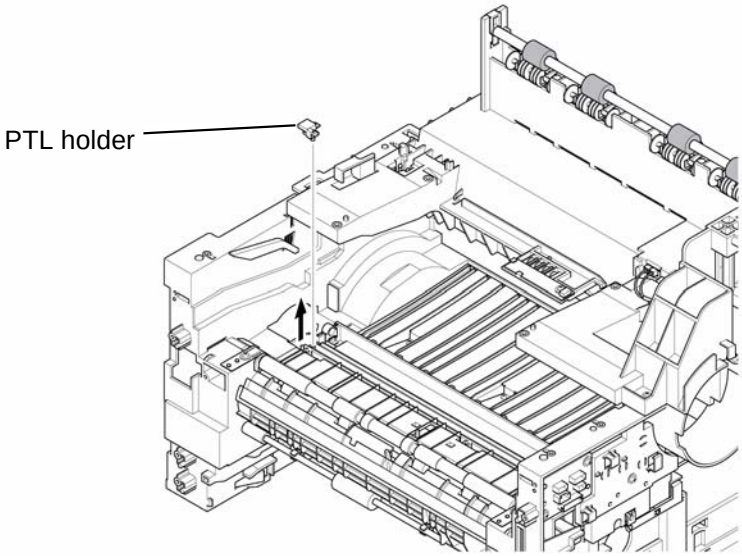

Figure 2

4. To remove the Transfer Roller, first pull the TR Holder and then take out the Transfer Roller, as shown below.

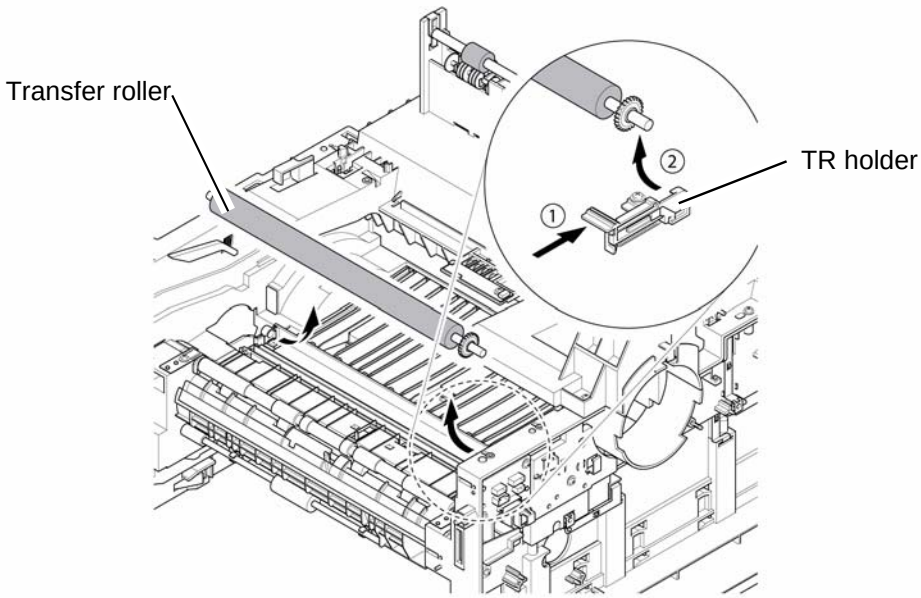

Figure 3

Note: *Do not grab the rubber part of the Transfer Roller, it may cause a malfunction due to a foreign object. HolD the both side of the Transfer Roller when replacing it.*

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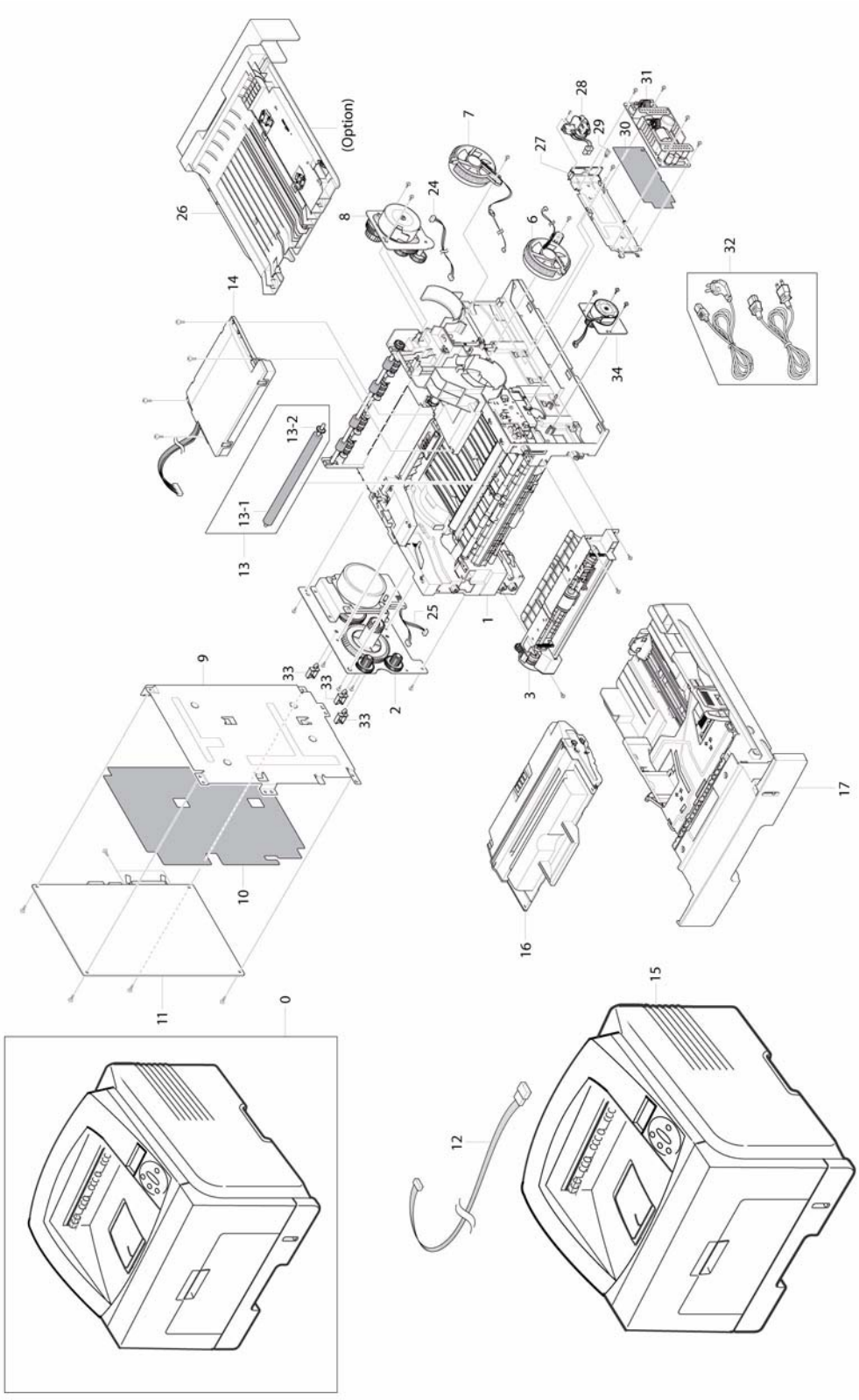
5 Parts List

PL 1 Main Parts List 5-2
PL 2 Cover Assembly 5-4
PL 3 Front Cover Assembly 5-6
PL 4 Rear Cover Assembly 5-8
PL 5 OPE Cover Assembly 5-10
PL 6 Frame (1 of 3) 5-12
PL 7 Frame (2 of 3) 5-14
PL 8 Frame (3 of 3) 5-16
PL 9 MP Assembly 5-18
PL 10 Main Drive Assembly 5-20
PL 11 Fuser Drive Assembly 5-22
PL 12 Duplex Unit (Optional) 5-24
PL 13 Fuser Unit (1 of 2) 5-26
PL 14 Fuser Unit (2 of 2) 5-28
PL 15 Cassette Unit 5-30

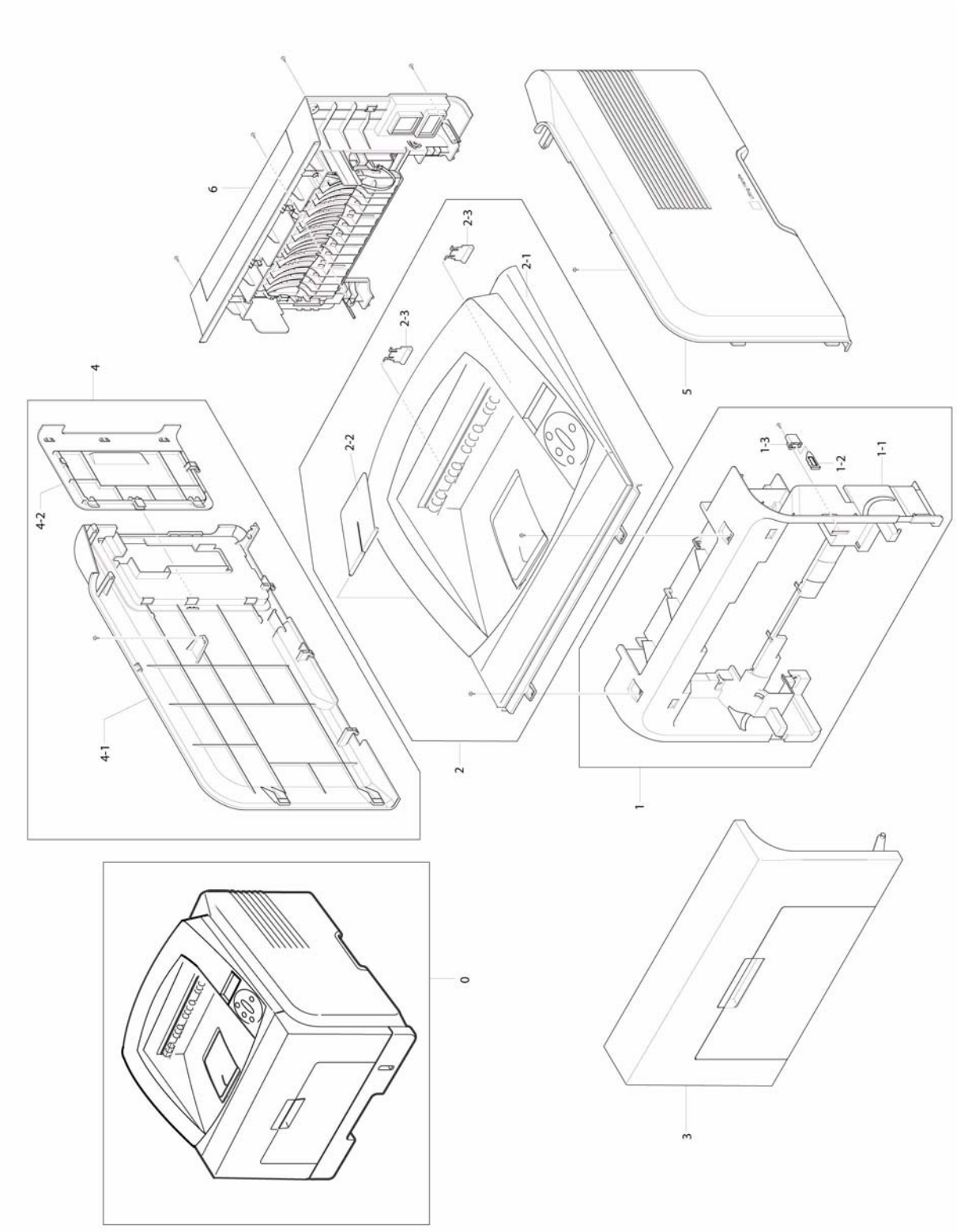
PL 1 Main Parts List



PL 1 Main Parts List

No.	Part No.	Description	QT'y	Remark
5.1-0	-	MACHINE		
5.1-1	-	ELA HOU-FRAME 220V	1	
5.1-1	-	ELA HOU-FRAME 110V	1	
5.1-2	007N01561	ELA UNIT-MAIN DRIVE	1	
5.1-3	002N02783	ELA HOU-MPF	1	
5.1-6	127N07328	FAN-DC	1	REP 14
5.1-7	127N07485	FAN-DC	1	REP 14
5.1-8	-	ELA UNIT-FUSER DRIVE	1	
5.1-9	-	MEA-SHIELD CONTROLLER	1	REP 8
5.1-10	-	SHEET-INSULATOR_PBA	1	REP 8
5.1-11	140N63345	PBA MAIN-CONTROLLER	1	REP 8
5.1-12	-	CBF HARNESS-LCD_OPE	1	
5.1-13	002N02628	MEA-TRANSFER ROLLER	1	
5.1-13-1	-	ROLLER-TRANSFER	1	
5.1-13-2	-	GEAR-TRANSFER	1	
5.1-14	122N00259	UNIT-LSU	1	REP 23
5.1-15	-	MEA-COVER	1	
5.1-16	-	ELA UNIT-INITIAL DEVE (CARTRIDGE-PRINT)	1	
5.1-17	050N00535	MEA UNIT-CASSETTE	1	
5.1-24	-	CBF HARNESS-EXIT MTR	1	
5.1-25	-	CBF HARNESS-MAIN MTR	1	
5.1-26	101N01422	MEA UNIT-DUPLEX	1	
5.1-27	-	SHIELD-P-SMPS	1	REP 11
5.1-28	-	CBF HARNESS-AC INLET	1	
5.1-29	-	CABLE CLAMP	3	
5.1-30	-	SHEET-INSULATOR_SMPS	1	REP 11
5.1-31	112N00229	SMPS (220V)	1	REP 11
5.1-31	112N00228	SMPS (110V)	1	REP 11
5.1-32	117N01769	CBF-POWER CORD(220V)	1	
5.1-32	105N02072	CBF-POWER CORD(110V)	1	
5.1-33	-	CABLE CLAMP	3	
5.1-34	-	ELA UNIT-DUPLEX DRIVE	1	REP 10
	097N01539	OPTIONAL TRAY (NOT SHOWN)	1	
	144N00159	OPTIONAL MEMORY (128Mb) (NOT SHOWN)	1	
	144N00139	OPTIONAL MEMORY (256Mb) (NOT SHOWN)	1	

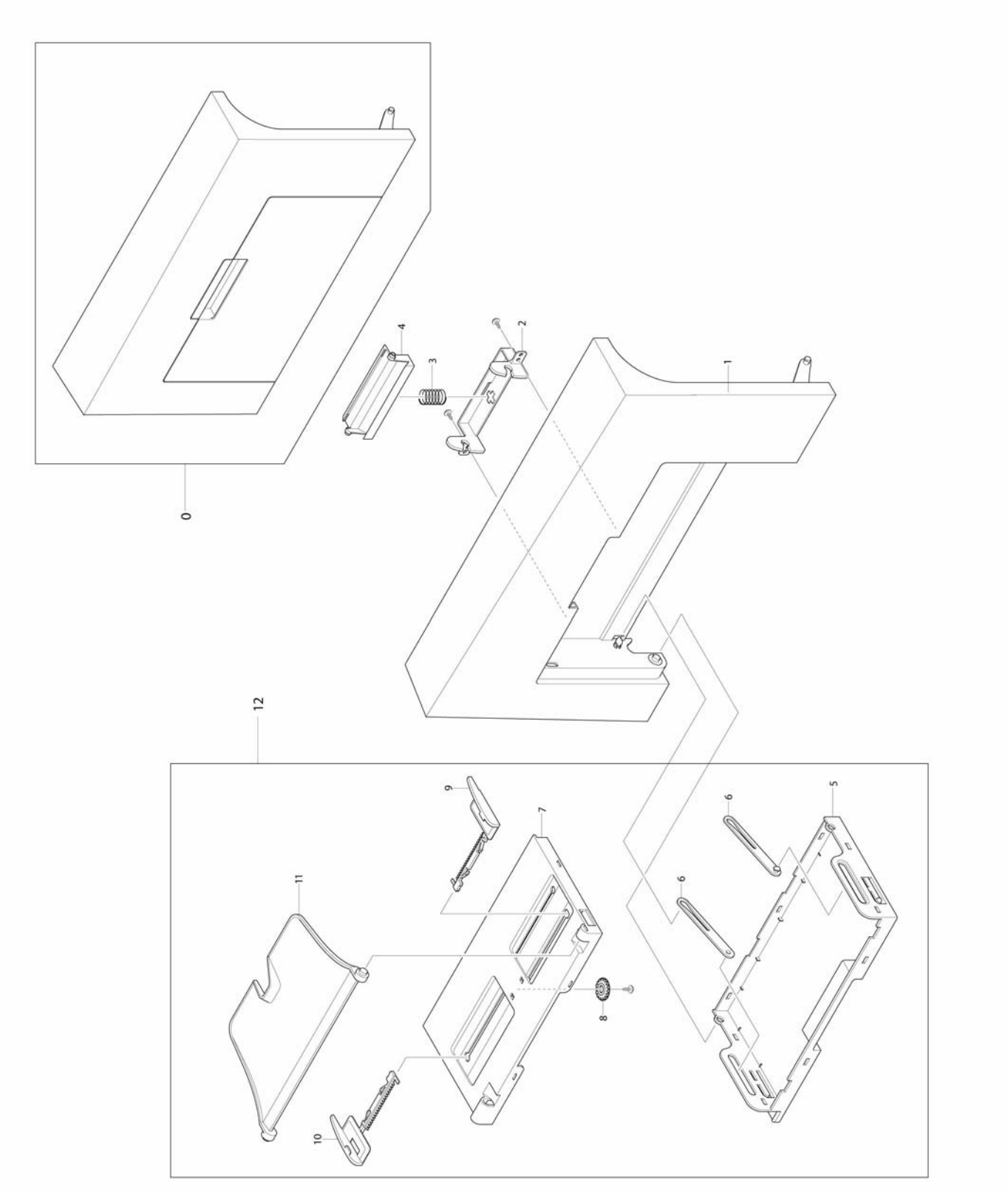
PL 2 Cover Assembly



PL 2 Cover Assembly

No.	Part No.	Description	QT'y	Remark
5.2-0	-	MEA-COVER	1	
5.2-0	-	MEA-COVER	1	
5.2-1	-	MEA-COVER MIDDLE	1	REP 18
5.2-1-1	-	COVER-M_MIDDLE	1	
5.2-1-2	-	PMO-M-SUB ACTUATOR	1	
5.2-1-3	-	CAP-M_SUB ACTUATOR	1	
5.2-2	-	MEA-COVER TOP	1	REP 5
5.2-2-1	-	COVER-M_TOP	1	
5.2-2-2	-	PMO-STACKER RX	1	
5.2-2-3	-	PMO-SUB STACKER	2	
5.2-3	-	MEA-COVER FRONT	1	
5.2-4	-	MEA-COVER SIDE L	1	REP 7
5.2-4-1	-	COVER-M_SIDE L	1	
5.2-4-2	-	COVER-M_DIMM	1	
5.2-5	-	MEA-COVER SIDE R	1	REP 7
5.2-6	-	MEA-COVER REAR	1	REP 3

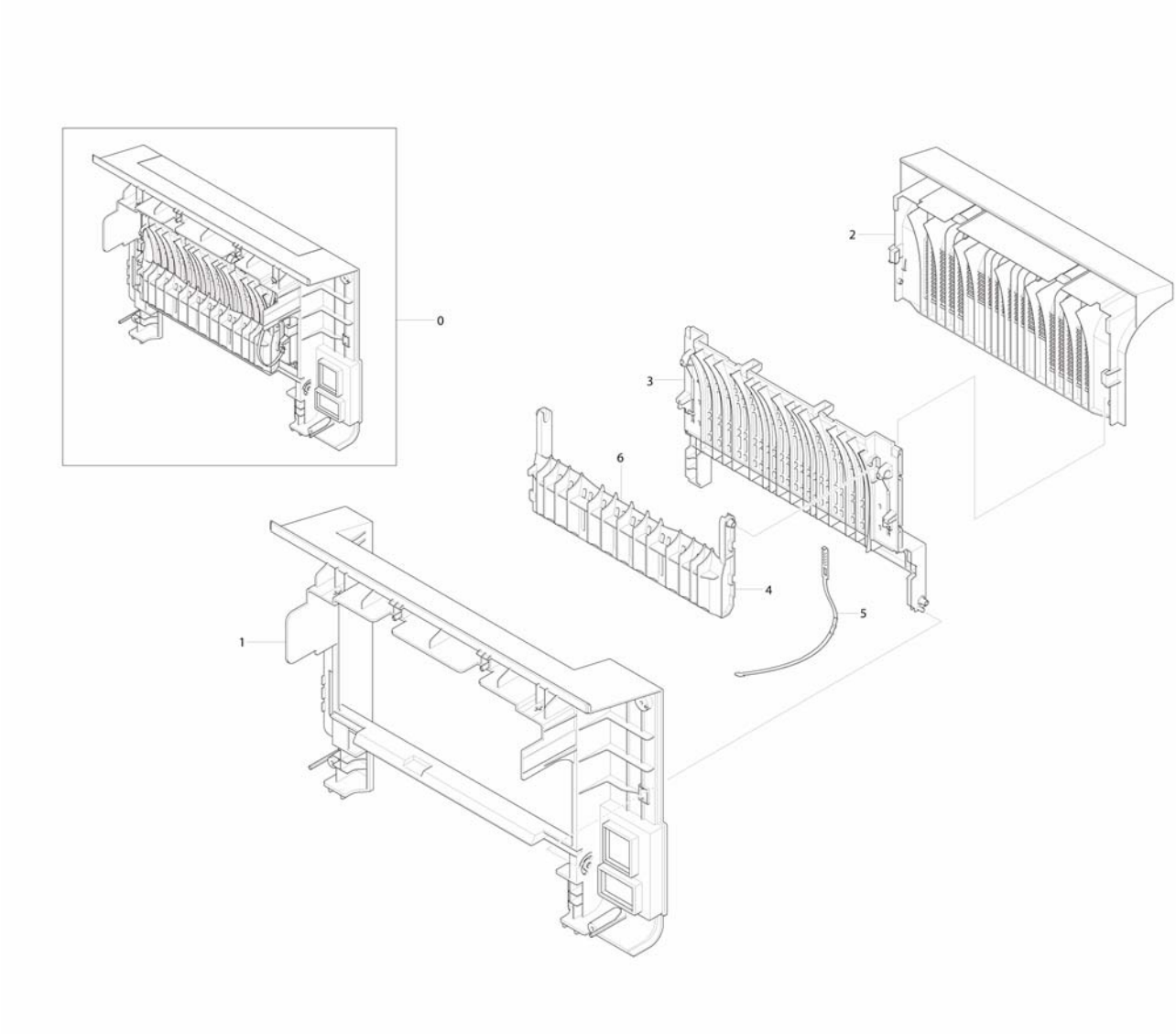
PL 3 Front Cover Assembly



PL 3 Front Cover Assembly

No.	Part No.	Description	QT'y	Remark
5.3-0	-	MEA-COVER FRONT	1	REP 1
5.3-1	-	COVER-M_FRONT	1	
5.3-2	-	HOLDER-M_LOCKER	1	
5.3-3	-	SPRING ETC-CIS(C2)	1	
5.3-4	-	KNOB-M_LOCKER	1	
5.3-5	-	TRAY-M-ASF_INPUT	1	
5.3-6	-	TRAY-M-LINK_MP	2	
5.3-7	-	TRAY-M-ASF_INPUT UPPER	1	
5.3-8	-	GEAR-PINION	1	
5.3-9	-	ADJUST-M_MP R	1	
5.3-10	-	ADJUST-M_MP L	1	
5.3-11	-	TRAY-M-ASF_FOLDER	1	
5.3-12	-	MP TRAY ASSEMBLY	1	REP 2

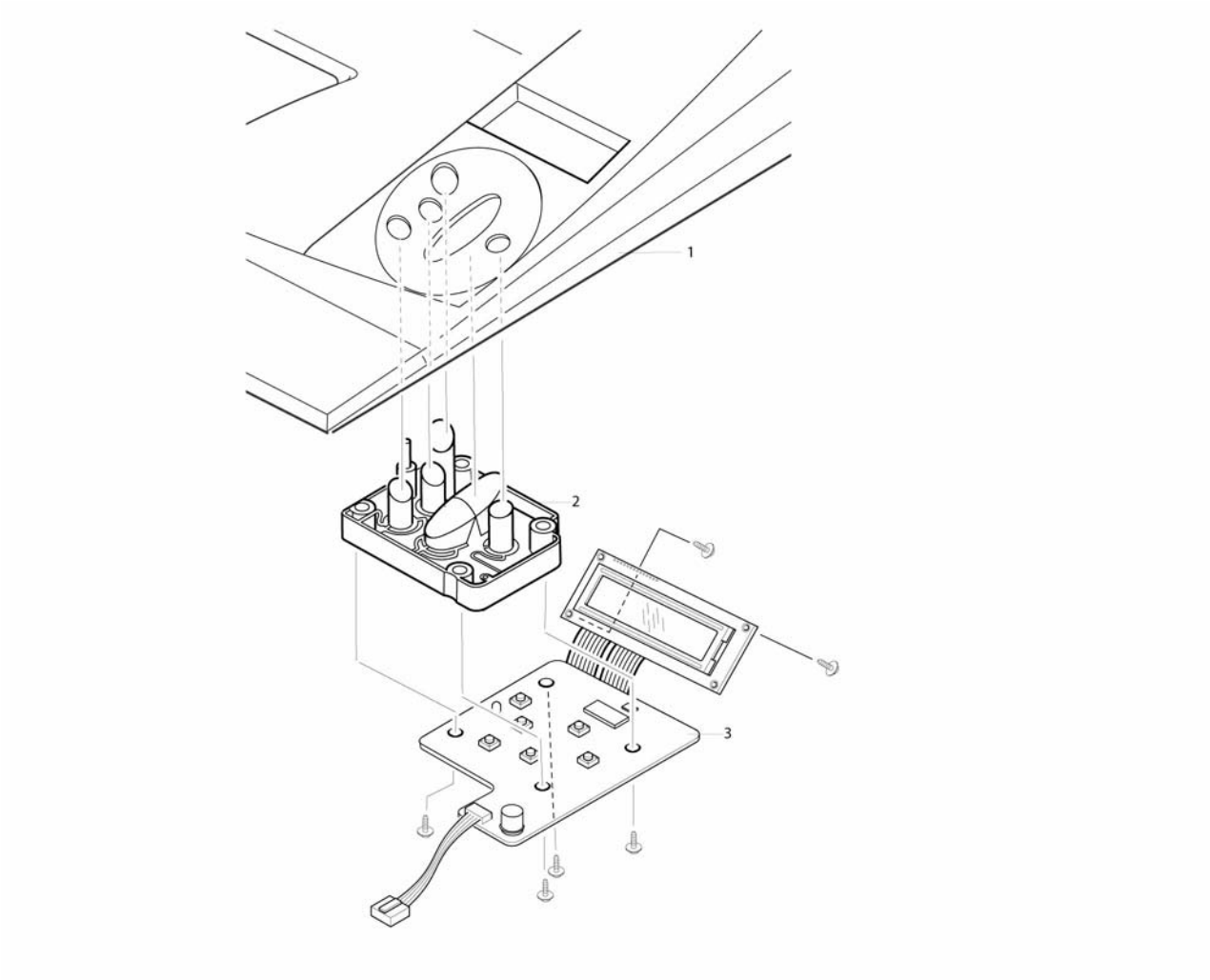
PL 4 Rear Cover Assembly



PL 4 Rear Cover Assembly

No.	Part No.	Description	QT'y	Remark
5.4-0	-	MEA-COVER REAR	1	
5.4-1	-	COVER-REAR	1	
5.4-2	-	COVER-M_FACE UP	1	
5.4-3	-	COVER-M STACKER REAR	1	
5.4-4	-	GUIDE-OUTPUT FUSER	1	
5.4-5	-	STOPPER-M-STRAP	1	
5.4-6	-	GUIDE-OUTPUT F UPPER	1	

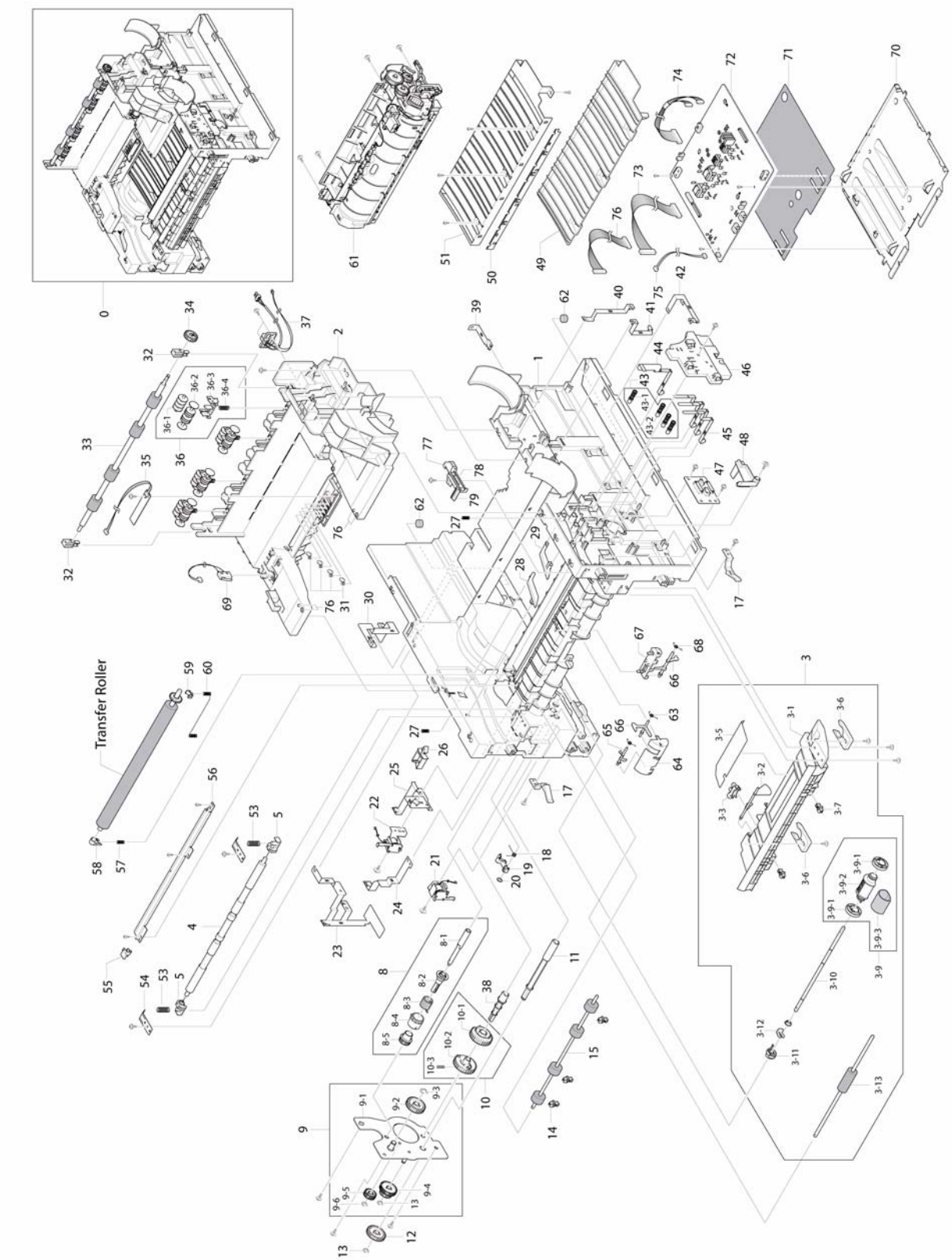
PL 5 OPE Cover Assembly



PL 5 OPE Cover Assembly

No.	Part No.	Description	QT'y	Remark
5.5-1	-	MEA-COVER TOP	1	REP 5
5.5-2	-	KEYS ASSEMBLY	1	REP 6
5.5-3	-	PBA SUB-OPE	1	REP 6

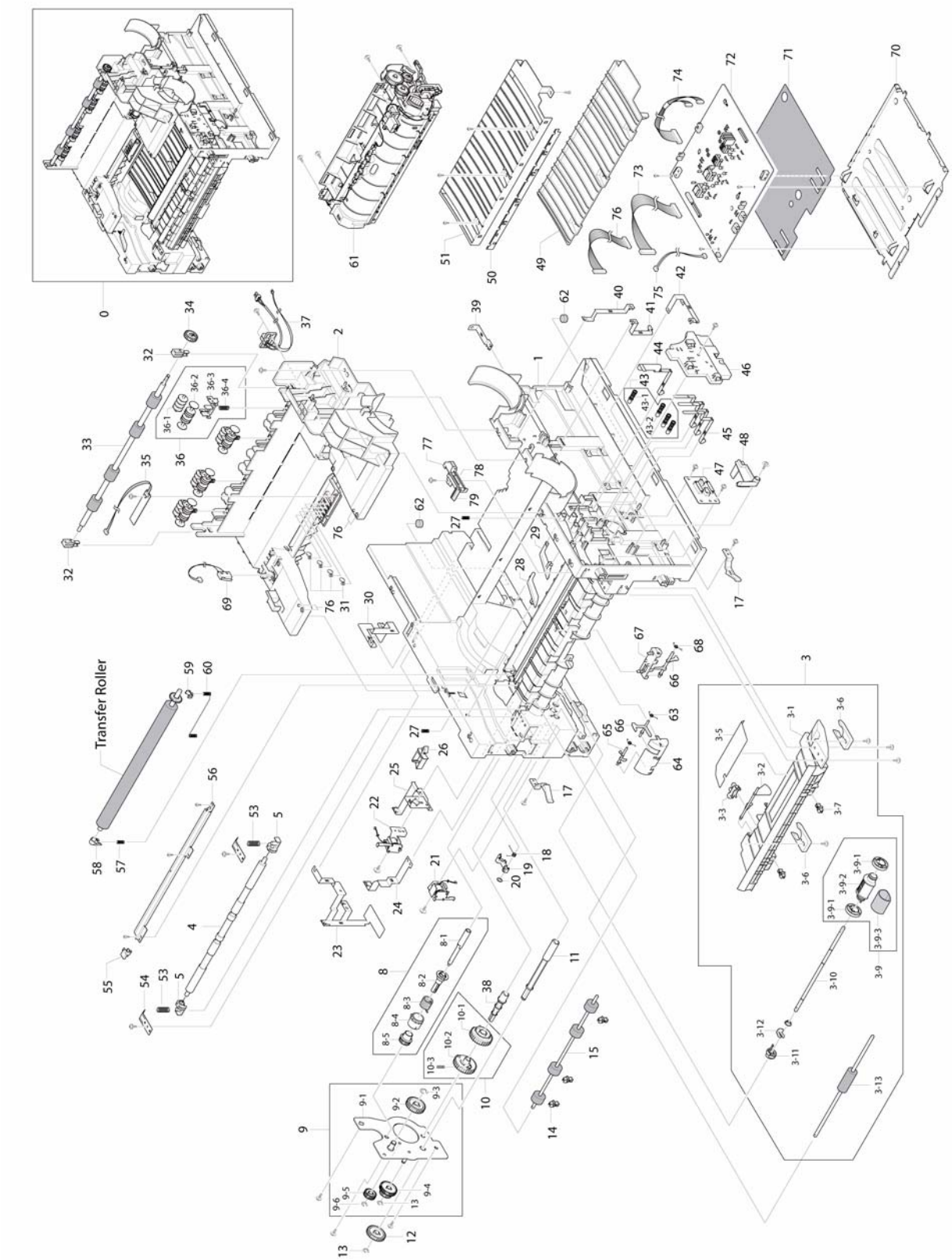
PL 6 Frame (1 of 3)



PL 6 Frame (1 of 3)

No.	Part No.	Description	QT'y	Remark
5.6-0	-	ELA HOU-FRAME 220V	1	
5.6-0	-	ELA HOU-FRAME 110V	1	
5.6-1	-	FRAME-M_BASE	1	
5.6-2	-	FRAME-M_EXIT	1	
5.6-3	-	ELA HOU-GUIDE DUP F	1	REP 16
5.6-3-1	-	GUIDE-M_FRONT DUPLEX	1	
5.6-3-2	-	LEVER-ACTUATOR EMPTY	1	
5.6-3-3	-	PHOTO-INTERRUPTER	1	
5.6-3-5	-	SHEET-GUIDE FRONT DU	1	
5.6-3-6	-	CAM-CATCH	2	
5.6-3-7	-	PMO-BUSHING FEED	2	
5.6-3-9	022N02292	MEA-ROLLER PICK UP	1	REP 15
5.6-3-9-1	-	ROLLER-IDLE PICK UP	2	
5.6-3-9-2	-	HOUSING-M_PICK UP	1	
5.6-3-9-3	-	ROLLER-PICK UP	1	
5.6-3-10	-	SHAFT-PICK UP	1	
5.6-3-11	-	CAM-SHAFT PICK UP	1	
5.6-3-12	-	PMO-BUSHING_P/U,MP	1	
5.6-3-13	022N02293	ROLLER-FEED	1	
5.6-4	-	SHAFT-FEED IDLE	1	REP 20
5.6-5	-	BUSH-M-FEED IDLE	2	
5.6-8	005N01031	MEA UNIT-CLUTCH	1	REP 20
5.6-8-1	-	SHAFT-FEED	1	
5.6-8-2	-	PMO-HUB CLUTCH	1	
5.6-8-3	-	SPRING-TS	1	
5.6-8-4	-	PMO-COLLAR_SPRING	1	
5.6-8-5	-	GEAR-FEED 1	1	
5.6-9	-	MEA UNIT-BRACKET FEED	1	REP 20
5.6-9-1	-	BRACKET-P-FEED	1	
5.6-9-2	-	GEAR-IDLE Z29 HELICAL	1	
5.6-9-3	-	RING-E	1	
5.6-9-4	-	GEAR-RETARD 39/19	1	
5.6-9-5	-	GEAR-T2 IDEL_Z27	1	
5.6-9-6	-	RING-E	2	
5.6-10	-	MEA UNIT-GEAR PICK UP	1	
5.6-10-1	-	GEAR-PICK UP_INNER	1	
5.6-10-2	-	GEAR-PICK UP_OUTER	1	
5.6-10-3	-	SPRING-CS	1	

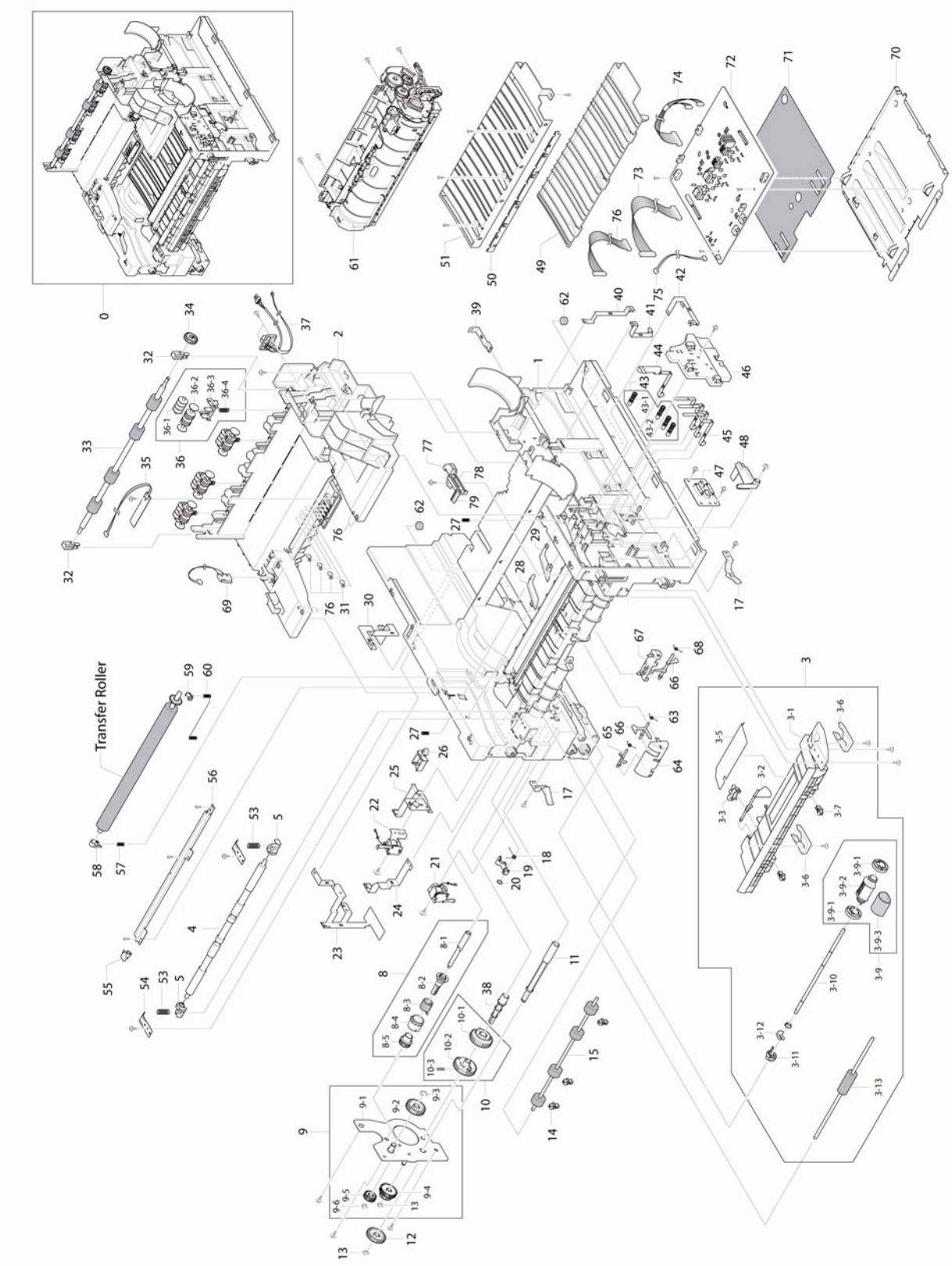
PL 7 Frame (2 of 3)



PL 7 Frame (2 of 3)

No.	Part No.	Description	QT'y	Remark
5.6-11	-	SHAFT-M_FEED2	1	
5.6-12	-	GEAR-FEED2 Z27	1	
5.6-13	-	RING-E	1	
5.6-14	-	PMO-BUSHING FEED	3	
5.6-15	022N02080	ROLLER-FEED ROLLER 1	1	REP 20
5.6-17	-	PMO-LOCKER CST	2	
5.6-18	-	SPRING-TS	1	
5.6-19	-	CAM-M-PICK_UP	1	
5.6-20	-	RING-CS	1	
5.6-21	-	SOLENOID-MANUAL	1	REP 21
5.6-22	-	SOLENOID-FEED	1	REP 21
5.6-23	-	GROUND-P-DRIVE	1	
5.6-24	-	GROUND-P-PUSH BUSHING	1	
5.6-25	-	GROUND-P-DRIVE2	1	
5.6-26	-	CABLE CLAMP	1	
5.6-27	-	SPRING ETC-GUIDE DEVE	2	
5.6-28	-	PMO-PLATE GUIDE DEVE_L	1	
5.6-29	-	PMO-PLATE GUIDE DEVE_R	1	
5.6-30	-	GROUND-P-SHIELD	1	
5.6-31	-	TERMINAL-P_CRUM	4	
5.6-32	-	HOLDER-BEARING EXIT F/DOWN	2	
5.6-33	022N02081	MEA RACK-EXIT ROLLER	1	REP 22
5.6-34	-	ROLLER-EXIT F/DOWN	1	
5.6-35	-	PBA SUB-TERMINAL	1	REP 24
5.6-36	022N02081	MEA RACK-EXIT ROLLER	4	
5.6-36-1	-	PMO-ROLLER FD R	1	
5.6-36-2	-	PMO-ROLLER FD F	1	
5.6-36-3	-	PMO-HOLDER EXIT ROLL	1	
5.6-36-4	-	SPRING ETC-EXIT ROLL FD	1	

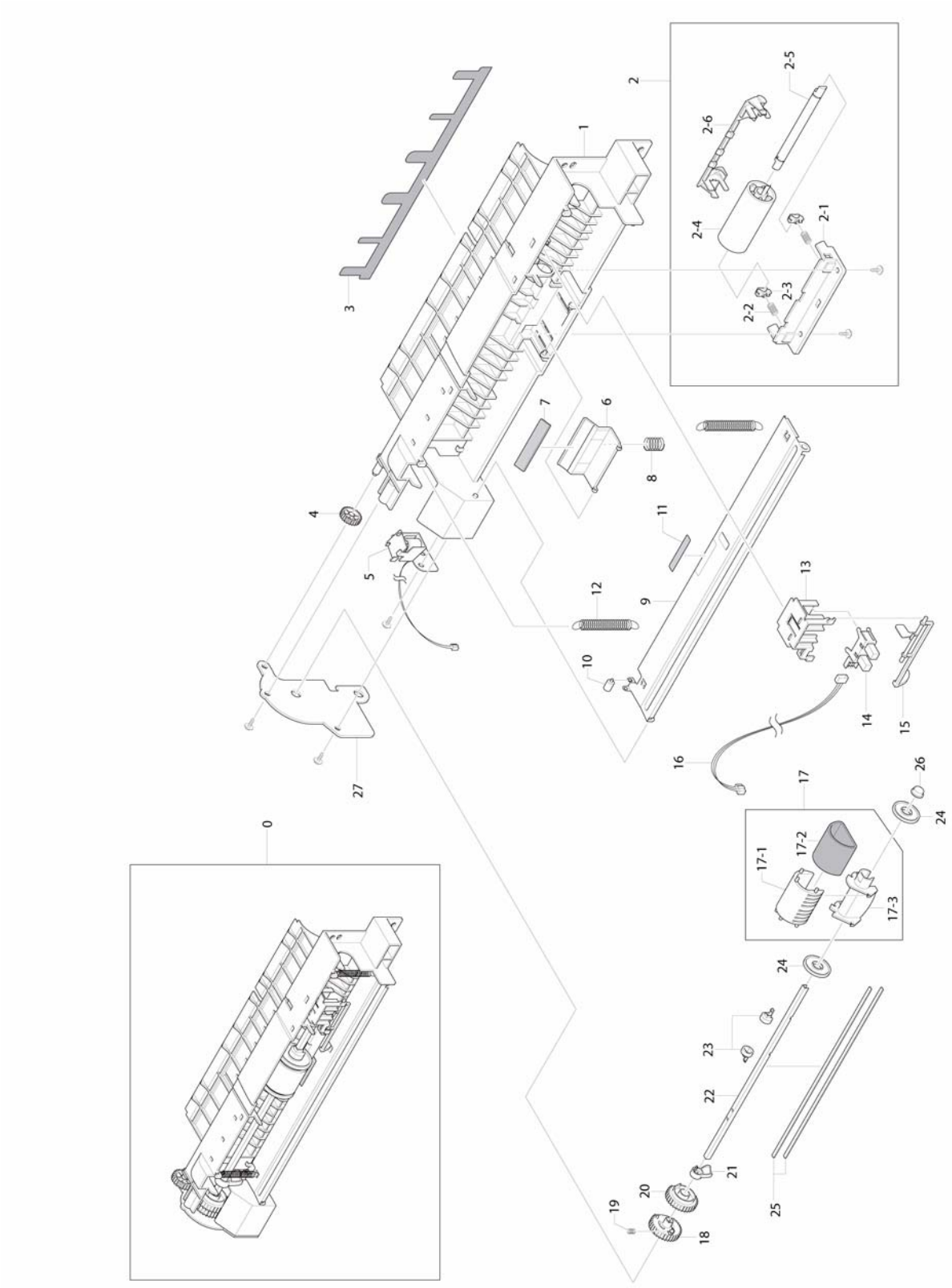
PL 8 Frame (3 of 3)



PL 8 Frame (3 of 3)

No.	Part No.	Description	QT'y	Remark
5.6-39	-	GROUND-P-FUSER	1	
5.6-40	-	GROUND-P-MOTOR FUSER	1	
5.6-41	-	GROUND-P-SHIELD SMPS	1	
5.6-42	-	GROUND-P-GUIDE TR	1	
5.6-43	-	MEC-TERMINAL	4	
5.6-43-1	-	SPRING ETC-HV APOLLO	1	
5.6-43-2	-	IPR-TERMINAL	1	
5.6-44	-	TERMINAL-P-HV CR		
5.6-45	-	IPR-P-TERMINAL CON	1	
5.6-46	-	HOUSING-M_TERMINAL	3	
5.6-47	-	PBA-CONNECTION	1	REP 12
5.6-48	-	PMO-ACTUATOR CVR OPEN	1	
5.6-49	-	GUIDE-TR RIB	1	
5.6-50	-	PLATE-E_SAW	1	
5.6-51	-	GUIDE-P-TR	1	
5.6-53	-	SPRING ETC-TR	2	
5.6-54	-	PLATE-P-PUSH BUSHING	2	
5.6-55	-	HOLDER-M-PTL R2	1	
5.6-56	-	IPR-P-EARTH TRANSFER	1	REP 25
5.6-57	-	SPRING ETC-TR L HAWK	1	
5.6-58	-	BUSH-M-TR L	1	
5.6-59	-	PMO-BUSHING_TR(L)	1	
5.6-60	-	GROUND-P-EARTH TR	1	
5.6-61	-	ELA UNIT-FUSER(220V)	1	
5.6-61	-	ELA UNIT-FUSER(110V)	1	
5.6-62	-	FOOT-BACK	2	
5.6-63	-	SPRING-TS	3	
5.6-64	-	HOLDER-M_ACT REGI	1	
5.6-65	-	LEVER-M_ACTUATOR REGI	1	
5.6-66	-	LEVER-M_ACT DUP OUT	1	
5.6-67	-	HOLDER-M_ACT FEED	1	
5.6-68	-	SPRING-TS	3	
5.6-69	-	CBF HARNESS-LSU S/W	1	
5.6-70	-	SHIELD-P-HVPS	1	REP 17
5.6-71	-	SHEET-INSULATOR_HVPS	1	REP 17
5.6-72	112N00230	HVPS	1	REP 17
5.6-73	-	CBF HARNESS-SMPS	1	
5.6-74	-	CBF HARNESS-ENGINE	1	
5.6-75	-	CBF HARNESS-PAPER EMP	1	
5.6-76	-	PLATE-LSU SUPPORT	1	

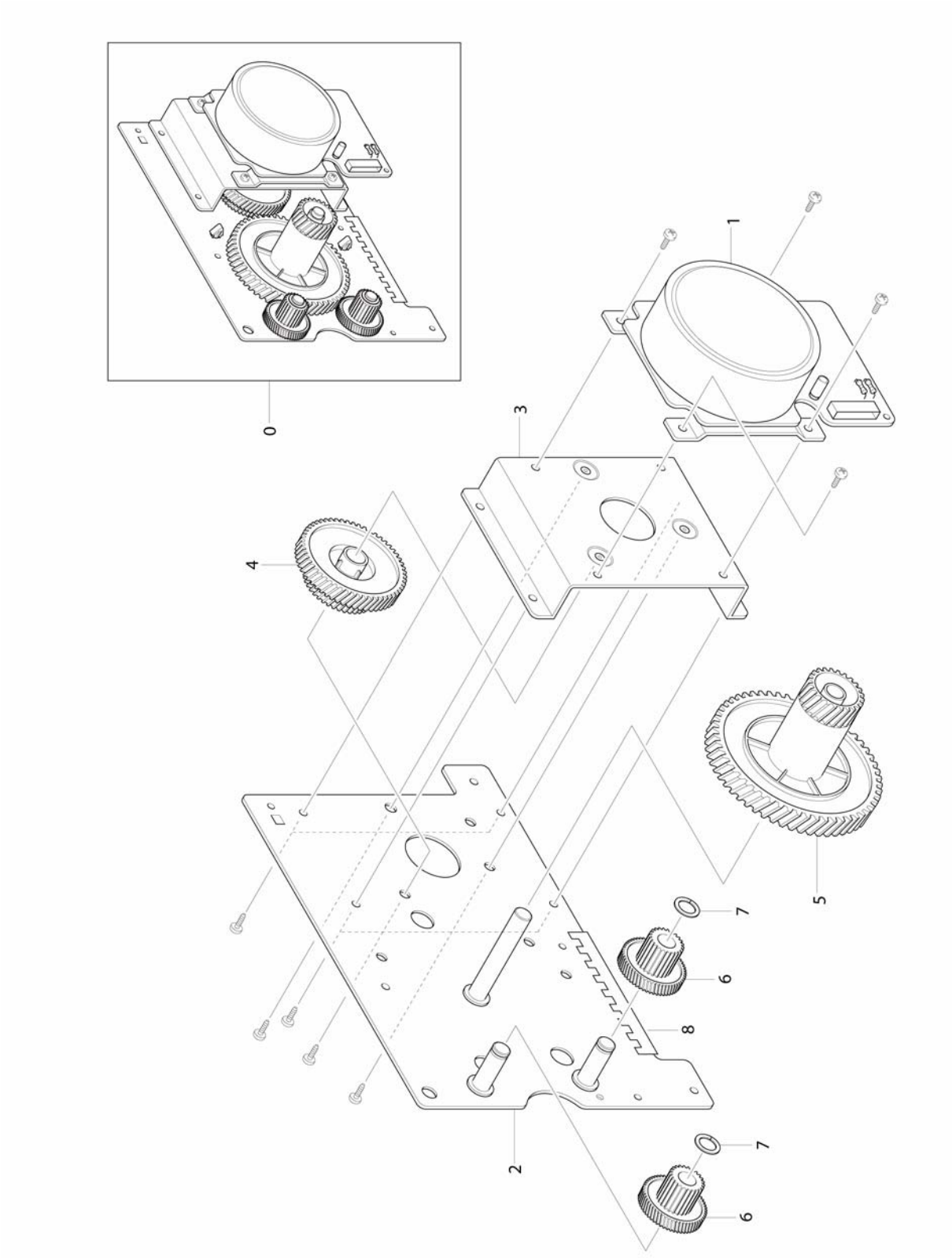
PL 9 MP Assembly



PL 9 MP Assembly

No.	Part No.	Description	QT'y	Remark
5.9-0	-	ELA HOU-MPF	1	REP 19
5.9-1	-	FRAME-M_MP	1	
5.9-2	-	MEA-IDLE FEED	1	
5.9-2-1	-	HOLDER-M_IDLE FEED	1	
5.9-2-2	-	SPRING ETC-EXIT LOWER IDLE	2	
5.9-2-3	-	HOLDER-M_SHAFT IDLE	2	
5.9-2-4	-	ROLLER-IDLE FEED	1	
5.9-2-5	-	SHAFT-IDLE FEED	1	
5.9-2-6	-	COVER-M_IDLE FEED	1	
5.9-3	-	SHEET-GUIDE MP	1	
5.9-4	-	GEAR-IDLE 23	1	
5.9-5	121N01173	SOLENOID-MP	1	
5.9-6	-	HOLDER-M-PAD_MP	1	
5.9-7	019N00742	RPR-FRICTION PAD	1	
5.9-8	-	SPRING ETC-EXIT ROLL FD	1	
5.9-9	-	PLATE-P-KNOCK UP_MP	1	
5.9-10	-	PMO-ROLLER CAM.MP	1	
5.9-11	-	RPR-PAD CASSETTE	1	
5.9-12	-	SPRING-ES	2	
5.9-13	-	HOLDER-M-SENSOR_MP	1	
5.9-14	-	PHOTO-INTERRUPTER	1	
5.9-15	-	PMO-M-ACT EMPTY MP	1	
5.9-16	-	CBF HARNESS-MPF SEN	1	
5.9-17	130N01366	MEA-PICK UP_MP	1	REP 19
5.9-17-1	130N01534	RUBBER-PICK UP MP	1	
5.9-17-2	-	HOUSING-M_PICK UP_MP	1	
5.9-17-3	-	HOUSING-M-PICK UP2_R2	1	
5.9-18	-	GEAR-M-PICK UP_MP	1	
5.9-19	-	SPRING-CS	1	
5.9-20	-	GEAR-M-HOLDER_MP	1	
5.9-21	-	CAM-M_PICK UP MP	1	
5.9-22	-	SHAFT-P-PICK_UP	1	
5.9-23	-	STOPPER-M-PICK UP_R2	2	
5.9-24	-	PMO-IDLE PICK_UP	2	
5.9-25	-	SHAFT-P-CORE	2	
5.9-26	-	BUSH-M-PICK_UP R	1	
5.9-27	-	BRACKET-P-PICKUP_MP	1	

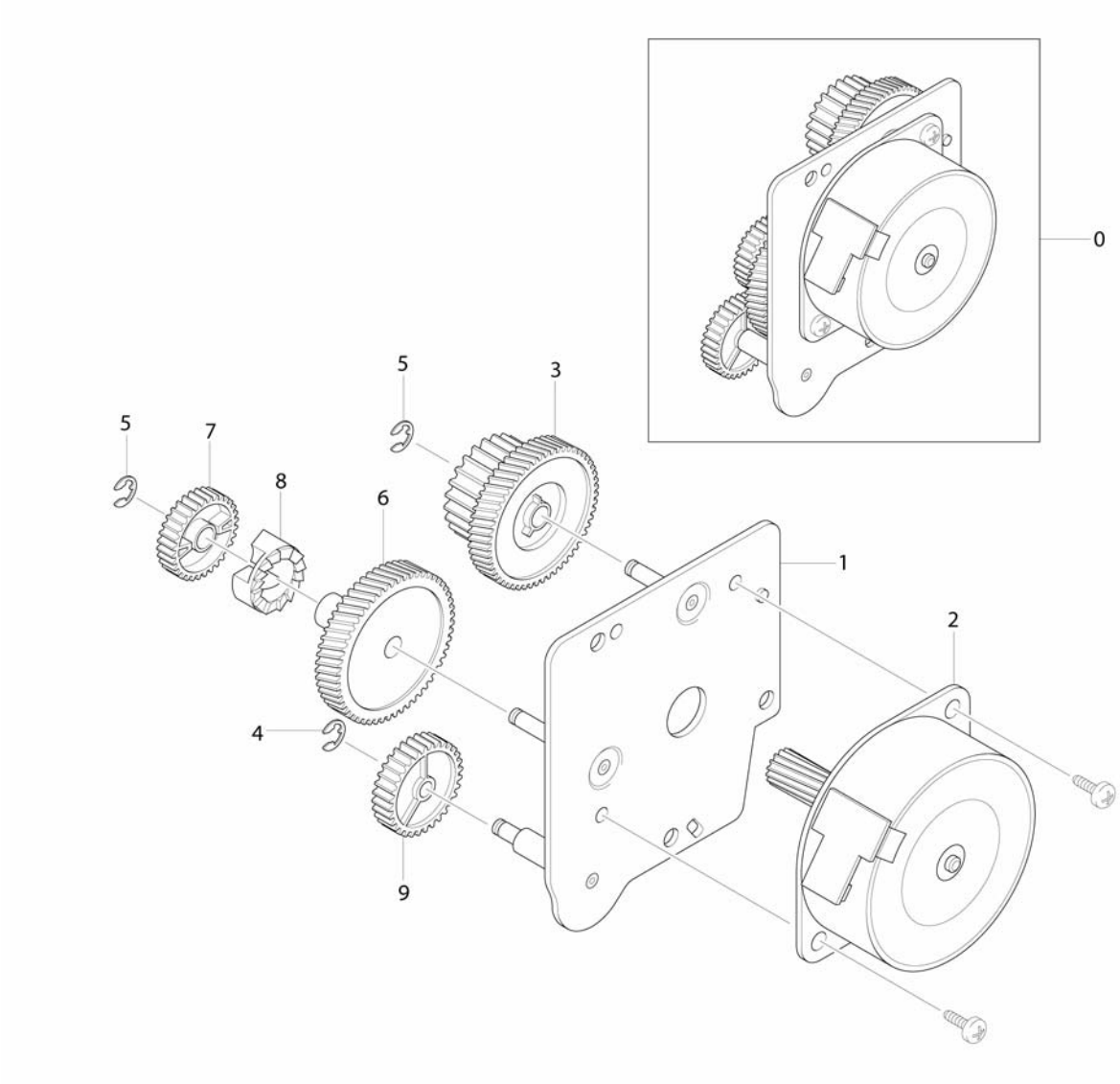
PL 10 Main Drive Assembly



PL 10 Main Drive Assembly

No.	Part No.	Description	QT'y	Remark
5.10-0	007N01561	ELA UNIT-MAIN DRIVE	1	REP 9
5.10-1	-	MOTOR DC-BLDC MAIN	1	REP 9
5.10-2	-	BRACKET-P-GEAR MAIN	1	
5.10-3	-	BRACKET-P-MOTOR MAIN	1	
5.10-4	-	GEAR-OPC RDCN 93/61	1	
5.10-5	-	GEAR-OPC DRV 113/33	1	
5.10-6	-	GEAR-FEED RDCN 55/18	2	
5.10-7	-	WASHER-PLAIN	2	
5.10-8	-	GASKET	2	

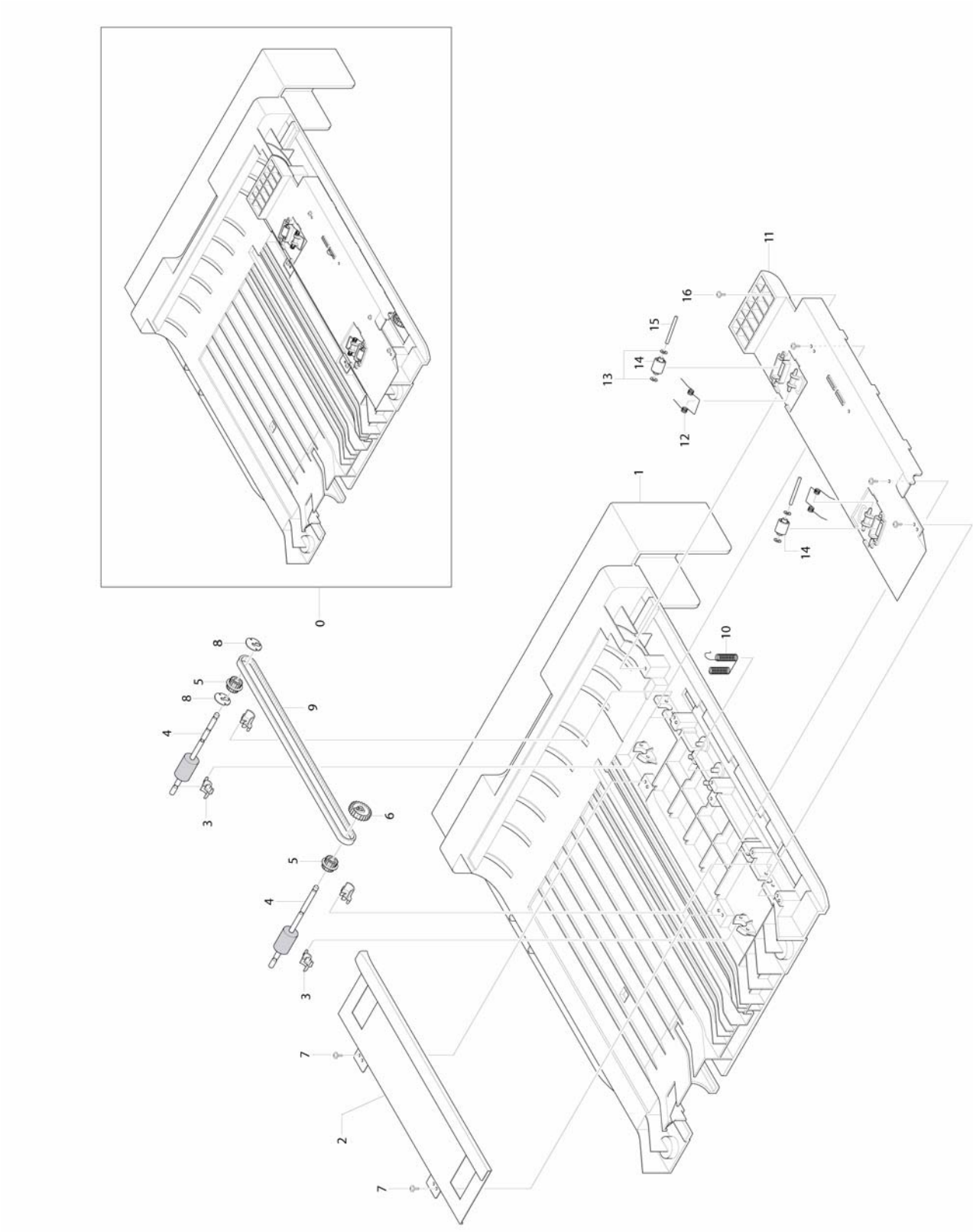
PL 11 Fuser Drive Assembly



PL 11 Fuser Drive Assembly

No.	Part No.	Description	QT'y	Remark
5.11-0	-	ELA HOU-FUSER DRIVE	1	REP 13
5.11-1	-	BRACKET-P-FUSER EXIT	1	
5.11-2	127N07560	MOTOR STEP-MAIN	1	REP 13
5.11-3	-	GEAR-EXIT RDCN 87/24	1	
5.11-4	-	RING-E	1	
5.11-5	-	RING-E	2	
5.11-6	-	GEAR-FUSER RDCN IN 95	1	
5.11-7	-	GEAR-RDCN FUSER OUT	1	
5.11-8	-	GEAR-HUB CLUTCH	1	
5.11-9	-	GEAR-FUSER IDLE FR	1	

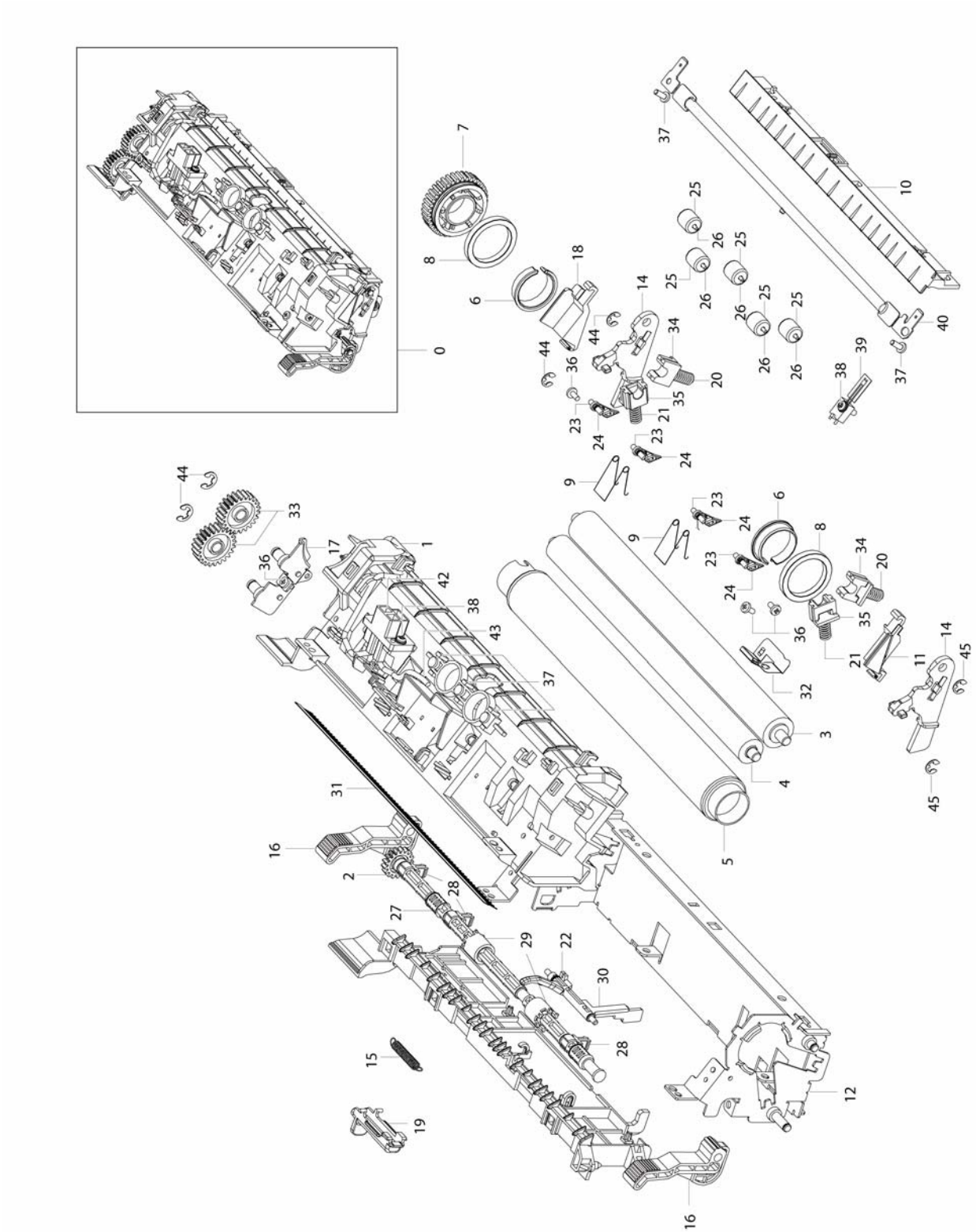
PL 12 Duplex Unit



PL 12 Duplex Unit

No.	Part No.	Description	QT'y	Remark
5.12-0	-	MEA UNIT-DUPLEX	1	
5.12-1	-	FRAME-M_DUP	1	
5.12-2	-	BRACKET-P-ALIGN DUP	1	
5.12-3	-	BUSH-M-FEED, DUP	4	
5.12-4	-	ROLLER-FEED_DUP2	1	
5.12-4	-	ROLLER-FEED_DUP	1	
5.12-5	-	PULLEY-18_DUP	2	
5.12-6	-	GEAR-EXIT F/DOWN	1	
5.12-7	-	SCREW-TAPTITE	2	
5.12-8	-	RING-C	1	
5.12-9	-	BELT-TIMMING	1	
5.12-10	-	TERMINAL-P-GND DUP	2	
5.12-11	-	GUIDE-M_UPPER DUP	1	
5.12-12	-	SPRING-TS	2	
5.12-13	-	PCT-SILP WASHER	4	
5.12-14	-	ROLLER-M-IDLE_ DUP	2	
5.12-15	-	SHAFT-IDLE ROLL, DUP	2	
5.12-16	-	SCREW-TAPTITE	4	
-	-	ELA UNIT-ROLLER_DUP2	1	
-	-	ELA UNIT-ROLLER_DUP	1	

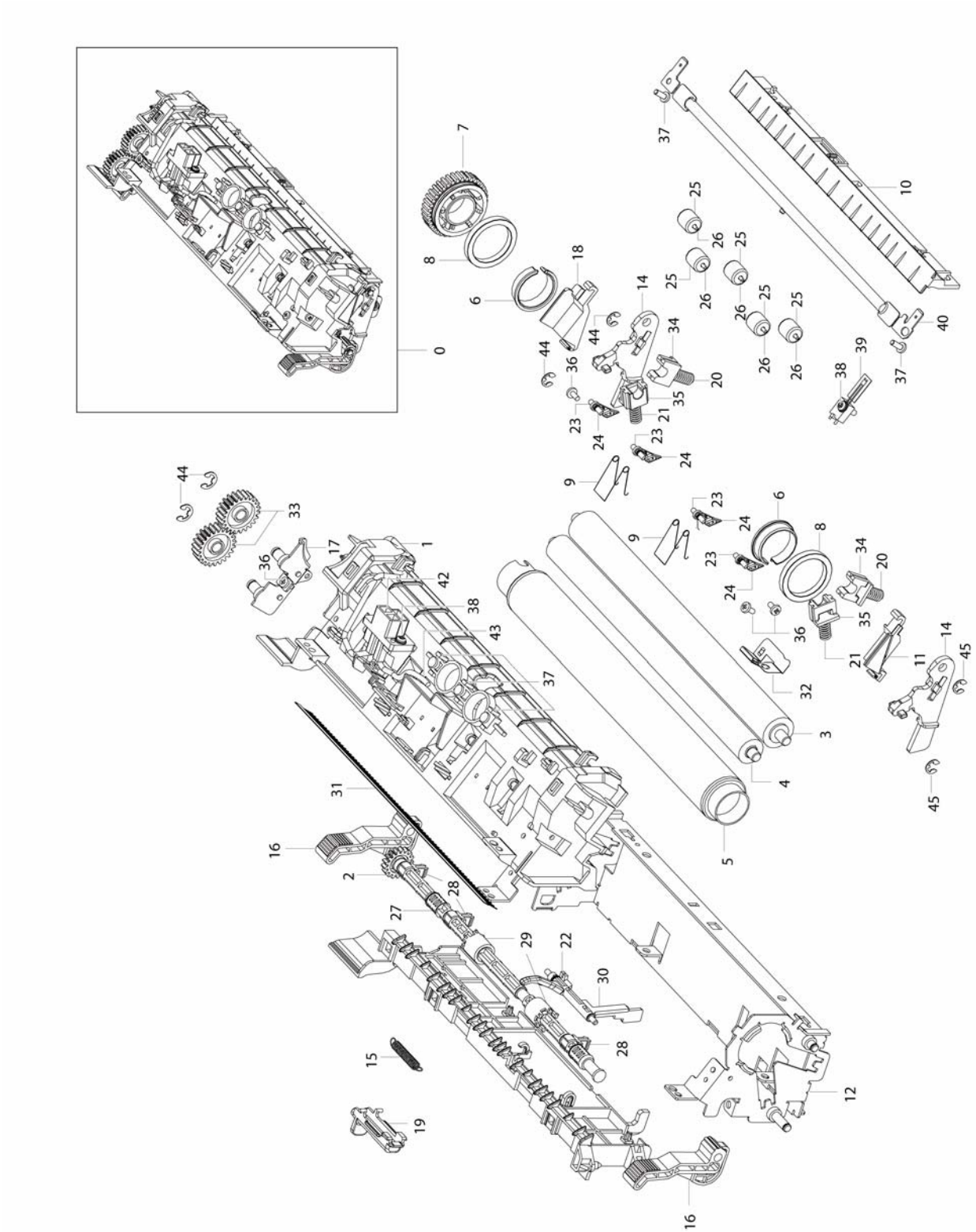
PL 13 Fuser Unit (1 of 2)



PL 13 Fuser Unit (1 of 2)

No.	Part No.	Description	QT'y	Remark
5.13-0	126N00291	ELA UNIT-FUSER (110V)	1	REP 4
5.13-0	126N00290	ELA UNIT-FUSER (220V)	1	REP 4
5.13-1	-	COVER-FUSER_UPPER	1	
5.13-2	-	GEAR-EXIT	1	
5.13-3	022N02365	ROLLER-PRESSURE	1	
5.13-4	022N02301	ROLLER-PRESSURE	1	
5.13-5	022N02366	ROLLER-HEAT	1	
5.13-6	-	BUSH-HR_R	2	
5.13-7	-	GEAR-FUSER	1	
5.13-8	-	BEARING-BALL	2	
5.13-9	-	SPRING-TS	2	
5.13-10	-	GUIDE-INPUT	1	
5.13-11	-	CAP-LAMP_L	1	
5.13-12	-	FRAME-FUSER	1	
5.13-13	-	GUIDE-REAR	1	
5.13-14	-	LEVER-LINK JAM	2	
5.13-15	-	SPRING-ES	1	
5.13-16	-	HOLDER-JAM	2	
5.13-17	-	BRACKET-FUSER	1	
5.13-18	-	CAP-LAMP_R	1	
5.13-19	-	HOLDER-M_REAR_LEVER	1	
5.13-20	-	SPRING-CS	2	
5.13-21	-	SPRING-CS	2	
5.13-22	-	SPRING ETC-ACTUATOR	1	

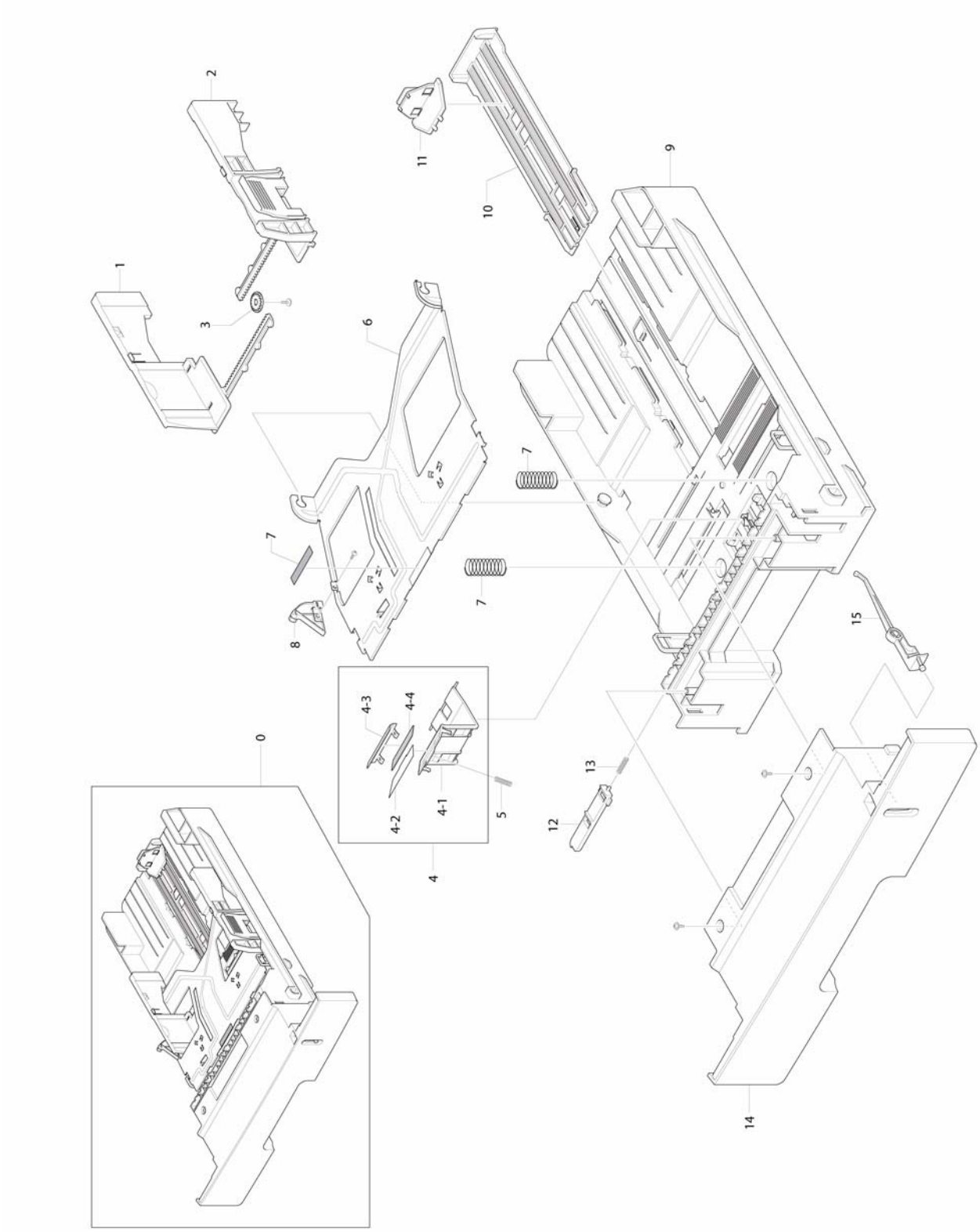
PL 14 Fuser Unit (2 of 2)



PL 14 Fuser Unit (2 of 2)

No.	Part No.	Description	QT'y	Remark
5.14-23	-	GUIDE-CLAW	4	
5.14-24	-	SPRING ETC-CLAW	4	
5.14-25	-	PEX-ROLLER F/UP(2)	5	
5.14-26	-	IEX-SHAFT IDLE,F/UP	5	
5.14-27	-	SHAFT-EXIT_F/UP	1	
5.14-28	-	BUSH-TX	3	
5.14-29	-	RUBBER-EXIT_F/UP	2	
5.14-30	-	ACTUATOR-EXIT	1	
5.14-31	-	MEC-BRUSH ANTISTATIC	1	
5.14-32	-	ELECTRODE-EARTH	1	
5.14-33	-	GEAR-IDLE 23 FUSER	2	
5.14-34	-	BUSH-PR_1ST	2	
5.14-35	-	BUSH-PR_2ND	2	
5.14-36	-	SCREW-TAPTITE	4	
5.14-37	-	SCREW-TAPTITE	5	
5.14-38	-	SCREW-TAPTITE	3	
5.14-39	130N01489	THERMISTOR-NTC ASSY	1	
5.14-40	130N01490	THERMOSTAT	1	
5.14-41	122N00260	LAMP-HALOGEN (110V)	1	
5.14-41	122N00261	LAMP-HALOGEN (220V)	1	
5.14-42	-	CBF HARNESS-FUSER CON	1	
5.14-43	-	CBF HARNESS-FUSER (220V)	1	
5.14-43	-	CBF HARNESS-FUSER (110V)	1	
5.14-44	-	RING-E	2	
5.14-45	-	RING-E	4	

PL 15 Cassette Unit



PL 15 Cassette Unit

No.	Part No.	Description	QT'y	Remark
5.15-0	-	MEA UNIT-CASSETTE	1	
5.15-1	-	ADJUST-M-CASSETTE_L	1	
5.15-2	-	ADJUST-M-CASSETTE_R	1	
5.15-3	-	GEAR-PINION	1	
5.15-4	-	MEA UNIT-HOLDER PAD	1	
5.15-4-1	-	HOLDER-M-PAD	1	
5.15-4-2	-	SHEET-HOLDER PAD R2	1	
5.15-4-3	-	IPR-PLATE PAD	1	
5.15-4-4	-	RPR-FRICTION PAD	1	
5.15-5	-	SPRING ETC-EXIT ROLL FD	1	
5.15-6	-	PLATE-P-KNOCK_UP	1	
5.15-7	-	SPRING-CS	2	
5.15-7	-	RPR-PAD CASSETTE	1	
5.15-8	-	CAM-M-KNOCK UP	1	
5.15-9	-	FRAME-M_CASSETTE	1	
5.15-10	-	GUIDE-M-EXTENSION L2	1	
5.15-11	-	PMO-EXTENSION SMALL	1	
5.15-12	-	PMO-PLATE_LOCKER	1	
5.15-13	-	SPRING ETC-LOCKER,PLATE	1	
5.15-14	-	COVER-M_SUB CST	1	
5.15-15	-	INDICATOR-M_CASSETTE	1	

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6 General Procedures and Information

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GP 1 Product Specifications

Overview

Up to 33ppm (Ltr. 35ppm)
USB 2.0, IEEE1284
10K Print Cartridge (4K Standard)
PCL6, PS3, 1200x1200dpi
Built in Duplex
-250 sheet Cassette
-50 sheet MP
-250 sheet Opt. SCF
400 MHz, 64MB Standard
-10/100 Base TX
-Opt. 802.11b/g Wireless N/W

Specifications

Product Specifications are subject to change without notice. See below for product specifications.

General Print Engine

Item	Condition	Description
Engine Speed	Simplex	Up to 33 ppm in A4 (35 ppm in Letter)
	Duplex	Up to 17 ipm in A4 (17.5 ipm in Letter)
Warmup time	From Sleep	Less than 15 sec, Cold warm-Up time: 15sec
FPOT	From Ready	Less than 8.5 sec
	From Idle	Less than 23.5 sec
	From Coldboot	Less than 30 sec
Resolution	-	Up to 1,200 x 1,200 dpi effective output

Controller & S/W

Item	Condition	Description
Processor		400 MHz
Memory	Std.	64 MB
	Max.	320 MB
Printer Languages	-	PostScript3, PCL6, SPL, IBM ProPrinter, EPSON
Fonts	-	45 scalable, 1 bitmap, 136 PostScript3 fonts

Driver	Default Driver	SPL	
	Supporting OS	Windows 2000/XP/2003/Vista	
		Various Linux OS including Red Hat, Caldera, Debian, Mandrake, Slackware,SuSE and Turbo Linux	
		Mac OS 8.6~9.2/10.1~10.4	
	WHQL	Windows XP/2000/2003	
	Compatibility	PCL6: Win95/98/NT4.0/2000/Me/XP/2003PS3: Win9x/NT4.0/2000/Me/XP/2003 PPD, Mac PPD, Linux PPDKS/KSSM: DOS	
Wired Network	Protocol	External: SPX/IPX, TCP/IP, SNMP, HTTP 1.1	
	Supporting OS	Microsoft Windows 98/ME/2000/XP/2003 Microsoft Windows NT 4.xMac OS8.6 and above Various Linux OS including Red Hat, Caldera, Debian, Mandrake, Slackware, SuSE and Turbo LinuxNovell 4.x,5.x,6.x	
Wireless Network	Protocol	External: SPX/IPX, TCP/IP, SNMP, HTTP 1.1	
	Supporting OS	Microsoft Windows 98/ME/2000/XP/2003 Microsoft Windows NT 4.xMac OS8.6 and above. Various Linux OS including Red Hat, Caldera, Debian, Mandrake, Slackware, SuSE and Turbo LinuxNovell 4.x,5.x,6.x	
Application	RCP	N/A	
	Status Monitor	N/A	
	Smart Panel	YES (RCP,SM)	
	Network Management	SAS, SetIP	
Interface			
Parallel USB	-	IEEE 1284	
	-	USB 2.0	
Wired Network	-	Ethernet 10/100 Base TX (Internal)	
Wireless Network	-	Optional (Internal)	Optional (Internal) 802.11b/g Wireless LAN (Internal)
User Interface			
LCD	-	2 x 16 Character without backlit	
LED	-	3 LED (Status, Toner Save, N-Up)	
Key	-	8 Key: Stop, Toner Save, N-Up<, OK, >, Menu, Back	

Paper Handling

Item	Condition	Description
Standard Capacity	-	250-sheet Cassette Tray, 50-sheet Multi Purpose Tray @ 75g/
Max. Capacity	-	550 sheets @ 75g/
Printing	Max. Size	216 x 356 mm (8.5" x 14")
	Min. Size	76 x 127 mm (3.0" x 5.0")
Multi-purpose tray		
Capacity	-	50 sheets @ 75g/ (20lb bond)

Media sizes	-	A4, A5, A6, Letter, Legal, Folio, Oficio, Executive,ISO B5, JIS B5,3"x5",Monarch, No.10, DL, C5, C6
Media type	-	Plain Paper, Transparency, Envelope, Labels, Post Card, Card stock
Media weight	-	16~43lb (60 to 163g/)
Sensing	-	Paper empty sensor
Standard Cassette Tray		
Capacity	-	250 sheets @ 75g/
Media sizes	-	A4, A5, Letter, Legal, Executive, Folio, Oficio, ISO B5, JIS B5
Media types	-	Plain paper, Thick, Thin, Recycled, Archive
Media weight	-	16~28lb (60 to 105g/)
Sensing	-	Paper empty sensor
Optional Cassette Tray		
Capacity	-	250 sheets @ 75g/
Media sizes	-	A4, A5, Letter, Legal, Executive, Folio, Oficio, ISO B5, JIS B5
Media types	-	Plain paper, Thick, Thin, Recycled, Archive
Media weight	-	16~28lb (60 to 105g/)
Sensing	-	Paper empty sensor
Output Stacking		
Capacity	Face-Down	150 sheets @ 75g/
	Face-Up	1 sheet @ 75g/
Output Full sensing	-	N/A
Capacity	Face-Down	150 sheets @ 75g/
	Face-Up	1 sheet @ 75g/
Output Full sensing	-	N/A
Duplex		
Supporting	-	Built-in
Media sizes	-	A4, Letter, Legal, Folio, Oficio
Media types	-	Plain Paper
Media weight	-	20~24lb (75 to 90g/)

Consumables

Item	Condition	Description
Toner	Black	4,000 pages @ ISO 19752 Coverage (Standard 4,000 pages, High Yield10,000 pages)
	Key	Electronic key (CRUM) Only
	Life detect	Toner gauge sensor by dot count
Drum	Yield	12,000 Images

Reliability & Service

Item	Condition	Description
Printing Volume (SET AMPV)	-	9,200 sheets-per year / 767 sheets-per month / 38 sheets-per day
5.2 Max. Monthly Duty	-	35,000 sheets
5.3 MPBF	-	100,000 sheets
5.4 MTTR	-	30 min.
5.5 SET Life Cycle	-	250,000 sheets or 5 years (whichever comes first)
5.6 RDS	Comm. Mode	Yes
	Operation	Yes

Environment

Item	Condition	Description
Acoustic Noise Level (Sound Power/Pres-sure)	Printing	Less than 52.0 dBA
	Standby	Less than 26.0 dBA
	Sleep	Back Ground Level
Power Consumption	Ready	Less than 130W
	AVG.	Less than 400W
	Max/Peak	Less than 700W
	Sleep/Power Off	Less than 11W / Less than 0.4W
Dimension (W x D x H)	SET	400 x 433 x 285 mm (15.7 x 17 x 11.2 inches)
Weight	SET	10.5 kg (23.15 Pounds)
	Gross	14.5kg (31.9 Pounds)

Memory

The Phaser 3435 has 64MB of memory which can be expanded to 320MB.

Others

Item	Condition	Description
Memory	Upgradable Mem. Slot	1 EA
	Upgradable Mem. Type	100 Pin SDRAM DIMM
	Upgradable Mem. Unit	128MB, 256MB
Sensor	Paper Empty	YES
	Paper Size	NO
	Media Type	NO
	Paper Full	NO
Service	Service Item & Period	1. Transfer Roller: 70K pages 2. Fuser Unit: 80K pages 3. Pick-up Roller: 150K pages

GP 2 System Overview

Construction

Summary

The Phaser 3435 is consisted of the Engine parts and F/W, and said engine parts is consisted of the mechanical parts comprising Frame, Feeding, Developing, Driving, Transferring, Fusing, Cabinet and H/W comprising the main control board, power board, operation panel, PC Interface.

- The main controller is consisted of Asic(SPGPv3) parts, Memory parts, Engine Interface parts and it functions as Bus Control, I/O Handling, drivers & PC Interface by CPU.
  Memory Access supports 16bit Operation, and Program Memory 32MB and Working Memory as well.
- The paper path is consisted of 250 sheets Cassette containing friction Pad, pickup-roller, feed-roller for functioning as registration, Earth-transfer for guiding the transfer inlet, Guide-Tr for guiding sheets
  between transferring and fixing, Fuser, Exit Assy.
- The driving device is consisted of f55 BLDC motor, OPC, Pick-up, Feed, Gear-Train connected with Mounting member.

System Layout

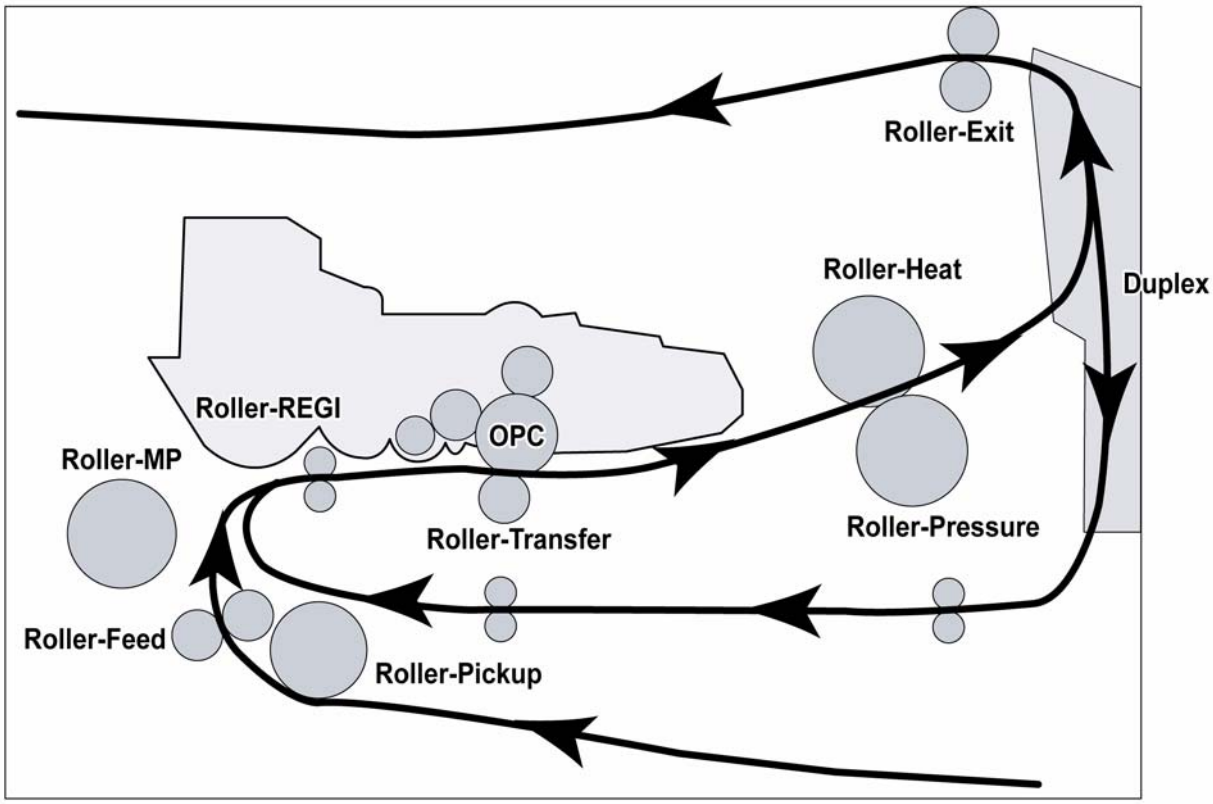


Figure 1

Feeding Section

- Feeding Method: Universal Cassette Type
- Feeding Standard: Centre Loading
- Feeding Capacity: Cassette 250 Sheets (75g/20lb Standard Paper)

Cassette

Figure 2

MPF

Figure 3

Transfer Assembly

- In Warranty (Life time): Within 70,000 sheets printing

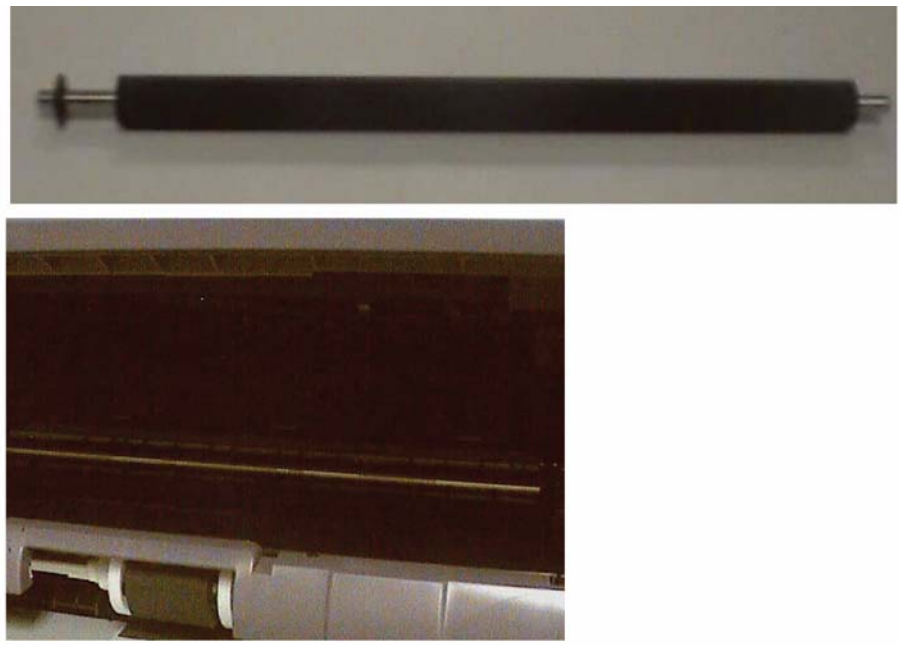


Figure 4

Driver Assembly

- MAIN Motor assembly is for Cassette, MPF and Print Cartridge.
- EXIT Motor assembly is for fuser, exit roller and the initial duplex feeding.

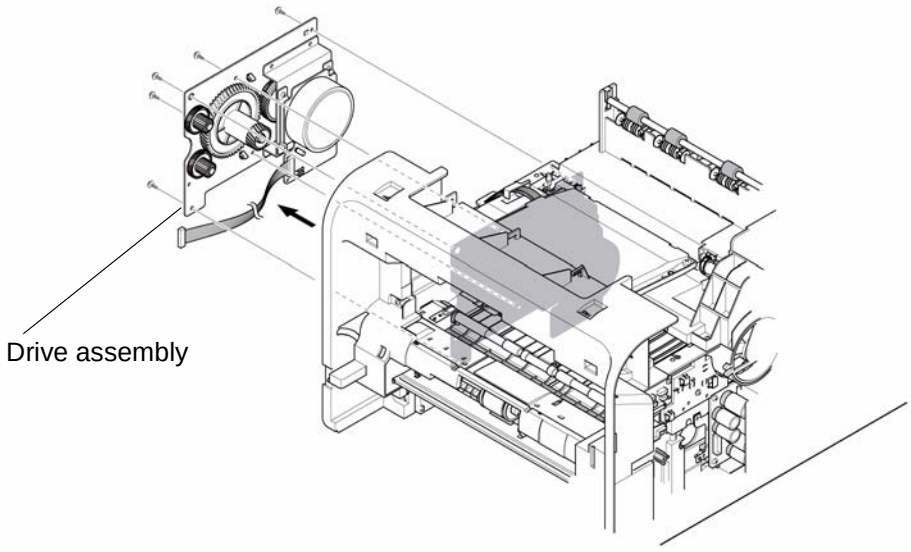


Figure 5

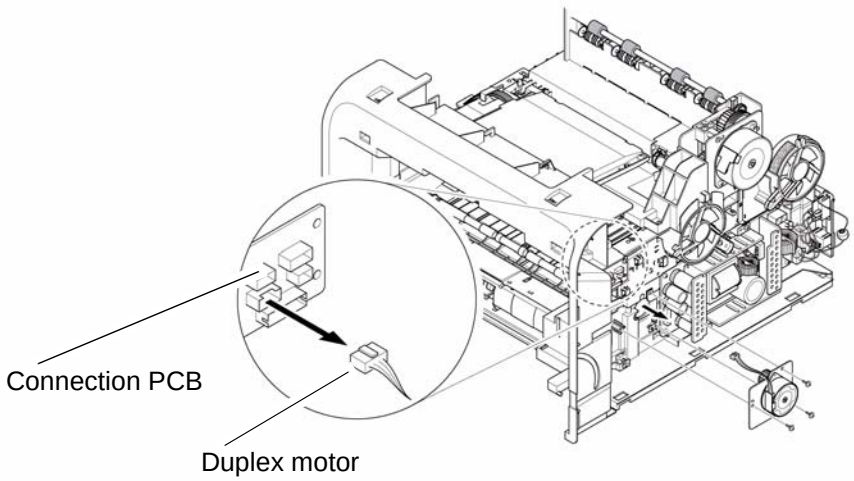


Figure 6

Fuser Assembly

- Fusing Type: Lamp Type
- Heat Roller: [28.3 with 0.1 Crown]
- Pressure Roller Pressure Roller 2: [electrically conductive]
- Thermistor - Temperature Detecting Sensor
- Thermostat - Overheat Protection Device

Trouble	Temperature Control Concept
Open Heat Error	50 degrees C for 20 sec at warm up
Over Heat Error	240 degrees C over for 2 sec or 220 degrees C over for 20 sec at ready or printing. 200 degrees C over for 10 sec at standby.
Low Heat Error	Standby: 130 degrees C below for 10 sec. Printing: It 30 degrees C lower than target temperature for 20 sec.

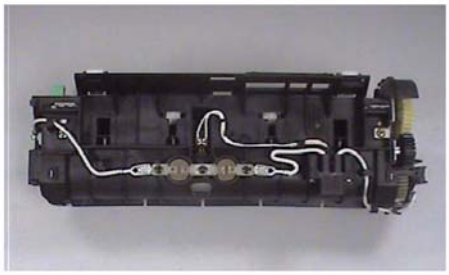


Figure 7

LSU

- LSU is consist of LD (Laser Diode) and polygon motor control. When the controller generate the printing signal LD will turn on and Polygon motor starts. If the receiving part in LSU detect the beam and then Hsync is generated. When the rotation of polygon motor is steady, it is time of LSU ready status for printing. If either of two condition is not satisfied, LSU error is expected.

Trouble	Failure Analysis
Polygon Motor Error	No steady rotation of Polygon Motor
Hsync Error	In spite of steady rotation of Polygon Motor, There is no generation of the Hsync signal

Print Cartridge

- OPC Cleaning: Mechanical Cleaning by the cleaning blade.
- The recycled toner: Trash room for the recycled toner
- No shutter for protecting the OPC Drum

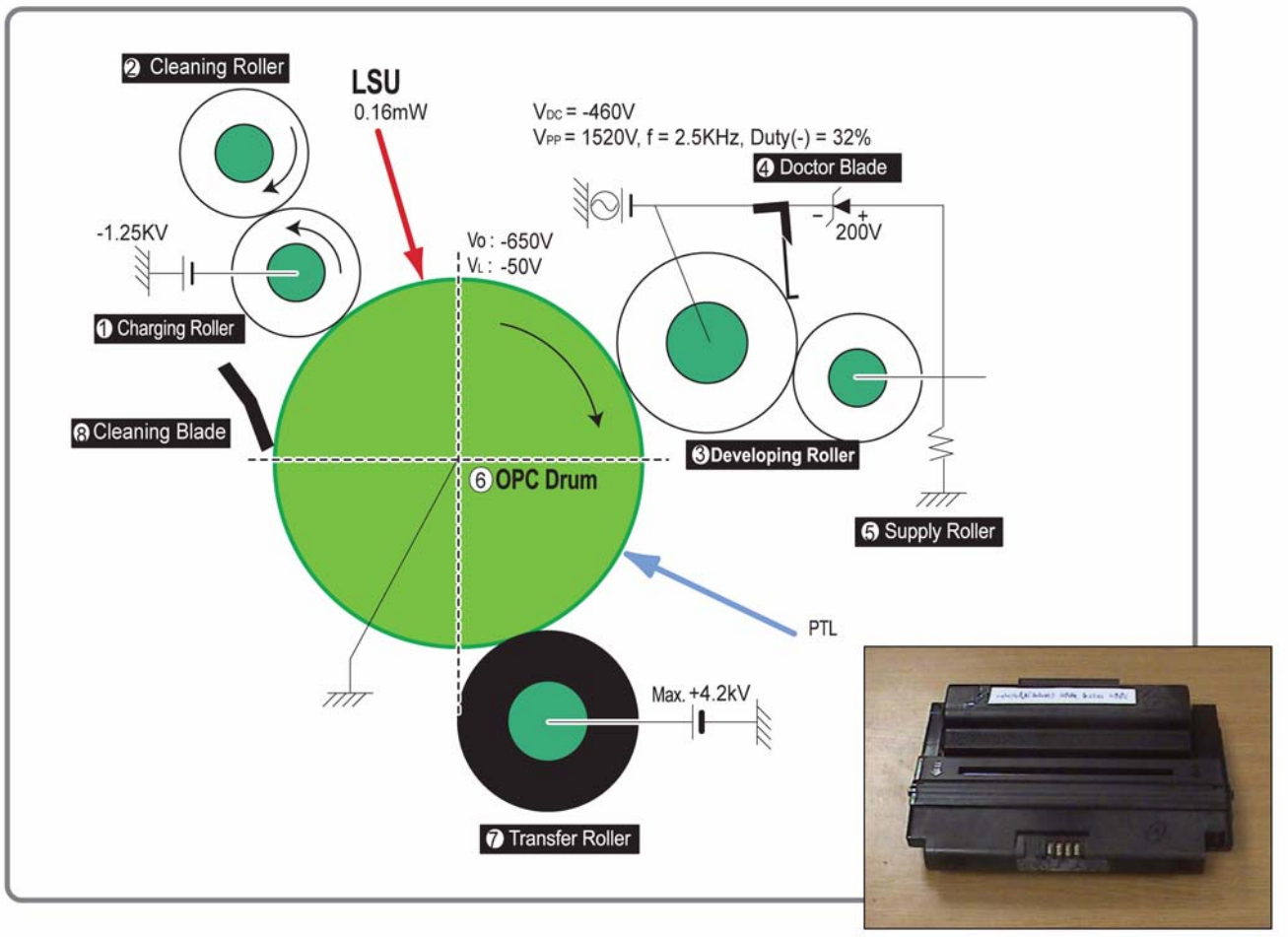


Figure 8

Duplex Unit

- Available Paper: Letter, Legal, Folio, Oficio and A4.

Figure 9

Optional Tray (SCF)

- For customer convenience in managing paper
- Capacity: 250 sheets

Figure 10

GP 3 Mechanical Parts Specifications

Frame

- Material: PC + ABS V0 NH-1000T(Cheil Industries)
- Weight: 1.0kg

Feeding Part

- Feeding Type: Universal Cassette Type
- Feeding Standard: Centre Loading
- Feeding Qty: Cassette 250 sheets (75g/20Ib paper standard) MPF 50 sheets (75g/20Ib paper standard) Special Media 5 sheets in MPF (OHP, Envelope, Label, Post Card, Index Paper etc.)
- Separating Type: Cassette-Friction Pad Type MPF-Friction Pad Type
- Driver Type: Driving by Gearing from Main Motor
- Pick Up Roller Driver: Solenoid
- Pick Up Roller Rubber Material: EPDM + IR = 1.6 or more
- Paper detecting Sensor: Photo Sensor
- Paper Size Sensor: None
- Paper Separating Pad Material: NBB 52 = 0.8~1.2
- Separating Pad Pressure: 190gf
- Feeding Pressure (Cassette): 250 gf 10% (SPRING H mm, based on 1 sheet 320 gf 10% (SPRING H mm, based on 250 sheet)
- Paper Exit Type: Face Down
- Feed Roller Driver: Solenoid

Transfer Assembly

It is consisted of PTL (pre-transfer lamp) and Transfer Roller. The PTL sends a light to the OPC drum, makes the current on the drum surface to low, and improve the transfer efficiency.The transfer roller delivers the toner of the OPC drum to the paper

- TR Voltage: +1.3KV +/-5%
  -1.20KV +/-10% (In cleaning)
- Transfer Trigger Current: 6.5 micro amps +/- 5%
- Transfer Efficiency: 85% or more (All environment: preferable media)
- Voltage System: Voltage PWM Control System
- Transfer Roller
  -Material: NBR FOAM ROLL
  -Structure: Mono layer
  -Resistance: 3E +07 ~ 8E +07 ohms (N/N)
  - Hardness: 40 3% (ASKER-C)
  -Valid length: 224.2 +0.5/-0mm
  - OD: 15.0 +/-0.5mm
  -SHAFT Material: SUM -24L + Non-electrolysis Ni. Coating
- Life Span: Print over 70,000 sheets (in 15~30 degrees C)

Driver Assembly

Motor

- Spec: BLDC 62 dia + PM 55 dia Motor (2-2 Bipolar) + PM 42 dia Motor (2-2 Bipolar)
- Pull-Out Torque:
  BLDC 62 dia: 1500 gf.cm(based on actual value) or more (1342.4rpm, 1.8A)
  PM 55 dia: 1490gf.cm(based on actual value) or more (711pps, 0.9A)
  PM 42 dia: 240gf.cm(based on actual value) or more (1850pps, 0.6A)
- TORQUE MARGIN (Tp/o Tsys): BLDC 62 dia Motor: 1500/1100 gf.cm=1.36
  PM 55 dia Motor: 1490/1053 gf.cm = 1.41
  PM 42 dia Motor: 240/165 gf.cm = 1.45
  Driving Frequency: BLDC 62 dia Motor: 1342.4 rpm(1006.8 Clock)
  PM 55 dia Motor: 888.75 rpm(711 pps)
  PM 42 dia Motor: 1156. 25rpm(1850 pps)
- It is a power delivery unit by gearing: BLDC 62 dia Motor -> Pickup/Feeder/Developer PM 55 dia Motor -> Fuser/Exit PM 42 dia Motor -> Duplex

Process Speed

- Print Speed: 33/35 PPM (based on A4/LTR)
- Process Speed: 211.78 mm/sec
- Jitter
  Vertical: 0.018 or less in Vision System
  Horizontal: within 2% of partial magnificence error
- Orthogonality: SPEC: +/-1.0 mm or less

Acoustic Noise

- Warming Up: 43dB or less
- Printing: 52dB or less
- Stand-by: 26dB or less

Fixing Part (Fuser)

The fuser consists of a halogen lamp, 2 pressure rolls, Thermistor and Themostat. It adheres the toner to the paper with pressure and a heat to complete the printing job.

Halogen Lamp

- Voltage: 120V: 115 +/-5%

220V: 230 +/-5%

- Capacity: 800 Watt 25W
- Temp. Distribution: 120%

Temperature-Interception Device (Thermostat)

- Thermostat Type: Non-Contact type THERMOSTAT
- Control Temperature: 170 degrees C +/-5 degrees C
- THERMOSTAT-ROLLER Gap: 1.6 +/-0.2mm

Temperature Detecting Sensor (Thermistor)

- Thermistor Type: HF-R0060 (SEMITEC 364FL Type)
- Temperature Resistance: 7k ohms (180 degrees C)
- SYSTEM Temperature SETTING
  -Stand by: 165 +/-5 degrees C
  - Printing: 189 +/-5 degrees C (5 minutes before)
  184 +/-5 degrees C (5 minutes after)
  -Overshoot: 200 degrees C less
  -Overheat: 210 degrees C less

Heat Roller

- Length: 247.5mm
- Valid length: 224mm
- OD: 28.3 + 0.05, -0.03 (Tubing incl., Crown 0.09~-0.15)
- Material: AL(AL5052) + PFA Tubing
- Thickness: 0.9mm
- Coating Material: PFA 100% Coating Thickness: 20um (Thickness after abrasion) GND
- Type: H/R Bearing Grounding type By SECC Fuser lower frame

Pressure Roller

- Shaft
  -Length: 251.3mm
  -Material: SUM
  - Thickness: 6 dia (14 dia - RUBBER portion)
- Rubber 1
  - Material: Silicon Rubber (Tubing Type: 20 dia)
  -Length: 226.4mm
  -Thickness: 5mm (one-side)
- Rubber 2
  - Material: Silicon Rubber (Tubing Type: 16 dia)
  -Length: 226.4mm
  -Thickness: 5mm(one-side)
- OD: 1) 20 +/-0.2(Center part Crown -0.2)
  2) 16 +/-0.2(Center part Crown -0.15)

Media Separating System

PI Coating with PPS Claw System

Safety Relevant Facts

- Protecting device when overheating
  -1st protecting device: H/W cuts off when detecting an overheating
  -2st protecting device: S/W cuts off when detecting overheating
  -3st protecting device: Thermostat cuts off the power
- Safety device
  -The power of Fuser is cut-off after front cover is open
  -The overheating safety device for customer
  -The surface temperature of the Fuser Cover is under 80 degrees C

LSU (Laser Scanner Unit)

The LSU unit is controlled by video controller. It scans the video data received from video controller with laser beam by

using the rotation principle of the polygon mirror to create the latent image on the OPC drum. It is the core part of LBP. The OPC drum rotates as the same speed as the paper feeding speed. It creates the /HSYNC signal and sends it to the engine when the laser beam of the LSU reaches the end of the polygon mirror, and the engine detects the /HSYNC signal to arrange the vertical line of the image on the paper. After detecting the /HSYNC signal, the image data is sent to the LSU to arrange the its margin on the paper.

The one side of the polygon mirror is one line for scanning.

Print Cartridge

In the print cartridge, the OPC unit and the developer unit are in a body.
The OPC unit has OPC drum and charging roller, and the developer unit has toner, print cartridge, supply roller, developing roller, and the blade.

Summary

- Developing Method: Non magnetic 1 element contacting method
- Toner: Non magnetic 1 element shatter type toner
- Charging capacity: -39.1+/-3 C/g (KAO meas. method)
- Average OD: 8.5 +/-0.5 (Toner)
- Toner Qty: 125 gf/250gf (4k / 10k)
- The life span of print cartridge: 4k/10k sheets (ISO 19752 Pattern / A4 standard)
- Toner Residual Sensor: Dot count with CRUM (CRU Monitor)
- OPC Cleaning: Collect the toner by using cleaning blade+ FILM OPC
- Handling of wasted toner: Collect the wasted toner in the cleaning frame by using cleaning blade
- OPC Drum Protecting Shutter: None
- Classifying device for print cartridge: ID is classified by interruption of the frame channel.

Developing Roller

- Roller type: conductive elastic roller
- Rotary Speed: 203.06 mm/sec
- Roller Bias: -220V ~ -400 20V
- Control Type: Bias PWM Control type
- Roller material: Conductive NBR + Surface UV process
  -Structure: Mono layer
  -Resistance: 1.0E+03~ 1.5E+06 ohms (N/N Condition)
  - Hardness: 52 degrees +/-5 degrees
  -Valid Length: 228 mm
  - OD: 14.07 mm +/-0.05
  -Shaft material: SUS 303
  -Surface roughness (Ra): Ra 2.0 ~ 2.5 (Circular-direction)
  -Friction coefficient (u): 0.1 ~ 0.5 (70gf, 50mm/min, OHP (3M,#CG3300))
  -Life: 100,000 sheets or more

Supply Roller

- Rotary Speed: 131.98 mm/sec
- Roller Bias: -370V ~ -550V
- Control Type: Bias
- Roller material: Nylon Fur
  -Structure: Closed cell
  - Resistance: 0.6E+05 ~ 3.0E+06 ohms (N/N cond.)
  - Hardness: 16 ~ 25 degrees (Asker "C")
  - Valid Length: 218 mm
  - OD: 11.2 +/-0.1 mm
  - Shaft material: SUM 24L Non-electrolysis Ni. Coating
  - Shaft OD: 8.2 mm + 0 / -0.05
  - Driver: Gear Driver (in a direction opposed to D/R)
  - Sponge Density: 0.45, +/-0.1 g
  - Life: 10,000 sheets or more

Regulating Blade

- Type: Regulating toner layer by pressure
- Material: SUS 301 1/2H CSP t0.08
- Valid Length: 228mm
- Voltage: -420V ~ -600V
- Regulating edge R value: 0.3 +/-0.02mm
- Pressure: 42 gf/cm

Charging Portion

- Type: Conductive Roller Contact-Charge
- Rotary Velocity: 179.7 mm/sec
- Surface potential: -760 +/-70V (based on OPC, N/N cond.)
- Residual potential: -130 V or less (initial)
- Control Type: Bias PWM Control
- Roller material: Conductive elastic roller (Conductive NBR + SBR)
  -Structure: Mono layer (Surface UV process)
  -Resistance: 0.75E+06 ~ 5.0E+06 (N/N cond.)
  -Hardness: 50 degrees +/-3 degrees
  -Length: 230 mm
  - OD: 12.0 +/-0.05 mm
  -Shaft Material: SUM-24L + Non-electrolysis Ni Coating
  - Shaft OD: 6 +0 / -0.05 mm
  -Driver: Gear Driver
  -Pressure: L:300 gf / R:350 gf
  -Roller surface roughness: Ra 1.8 um or less (shaft direction)
  -Roller life: 10,000 sheets or more
- Roller Voltage: -1.25 ~ -1.70 KV

Engine H/W Specifications

Main Board

The Engine Board and the Controller Board are in one united board, and it is consisted of CPU part and print part in functional aspect. The CPU is functioned as the bus control, I/O handling, drivers, and PC interface. The main board sends the Current Image of Video data to the LSU and manages the conduct of Electrophotography for printing. It is consisted of the circuits of the motor (paper feed, pass) driving, clutch driving, pre-transfer lamp driving, current driving, and fan driving. The signals from the paper feed jam sensor and paper empty sensor are directly inputted to the main board.

Asic(SPGPv3)

- CPU Core: ARM1020E
  -32KB instruction cache and 32KB data cache
- Operating Frequency
  -CPU Core: over 300MHz
  -System Bus: 100MHz
- SDRAMC
  -32Bits Only, 100MHz
  -5 Banks (Up to 128MB per Bank)
- ROMC
  -4 Banks (Up to 16MB per Bank)
- IOC
  -6 Banks (Up to 16MB per Bank
- DMAC
  -4 Channels
- HPVC
  -Dual/Single Beam
  -LVDS Pad (VDO, HSYNC)
- UART
  -5 Channels (1 Channels Supports DMA Operation)
- PCI Controller
  -32Bits, 33/66MHz
  -PCI Local Bus Specification rev2.2 Complaint
  -Host / Agent Mode (Support 4 Devices in Host Mode)
- NAND Flash Controller
  -8/16Bits, H/W EEC Generation
  -Auto Boot Mode (Using Internal SRAM, 4KB)
- MAC
  -10M/100Mbps
  -Full IEEE 802.3 Compatibility
- Engine Controller
  -LSU Interface Unit
  -Step Motor: 2 Channels
  -PWM: 8 Channels
  -ADC: 6 Channels
- I2C Controller
  -I2C(S-BUS) Slave Device Support(I2C Version 2.1)
- RTC
  -RTC Core Voltage: 3V PLL
  -3 PLL: MAIN, PCI, PVC

Memory

- Flash Memory: It stores System Program and downloads the System Program through PC Interface, and in case of model for export it compresses the PCL font, then stores it.
  -Capacity: 32M Byte (NAND Flash)
  -Random Access Time: 10 us (Max)
  -Serial Page Access Time: 50ns (Min)
- DRAM: It is used as Swath Buffer, System Working Memory Area, etc. when printing.
  It stores Font List, compressed into Flash memory, on DRAM and uses it as PCL font in case of model for export.
  -Capacity: 64M Byte (Basic), up to 320Mbyte (User Option)
  -Type: SDRAM 100MHz/133MHz, 16bit

Others

The Option PBA can be mounted for supporting the serial communication.

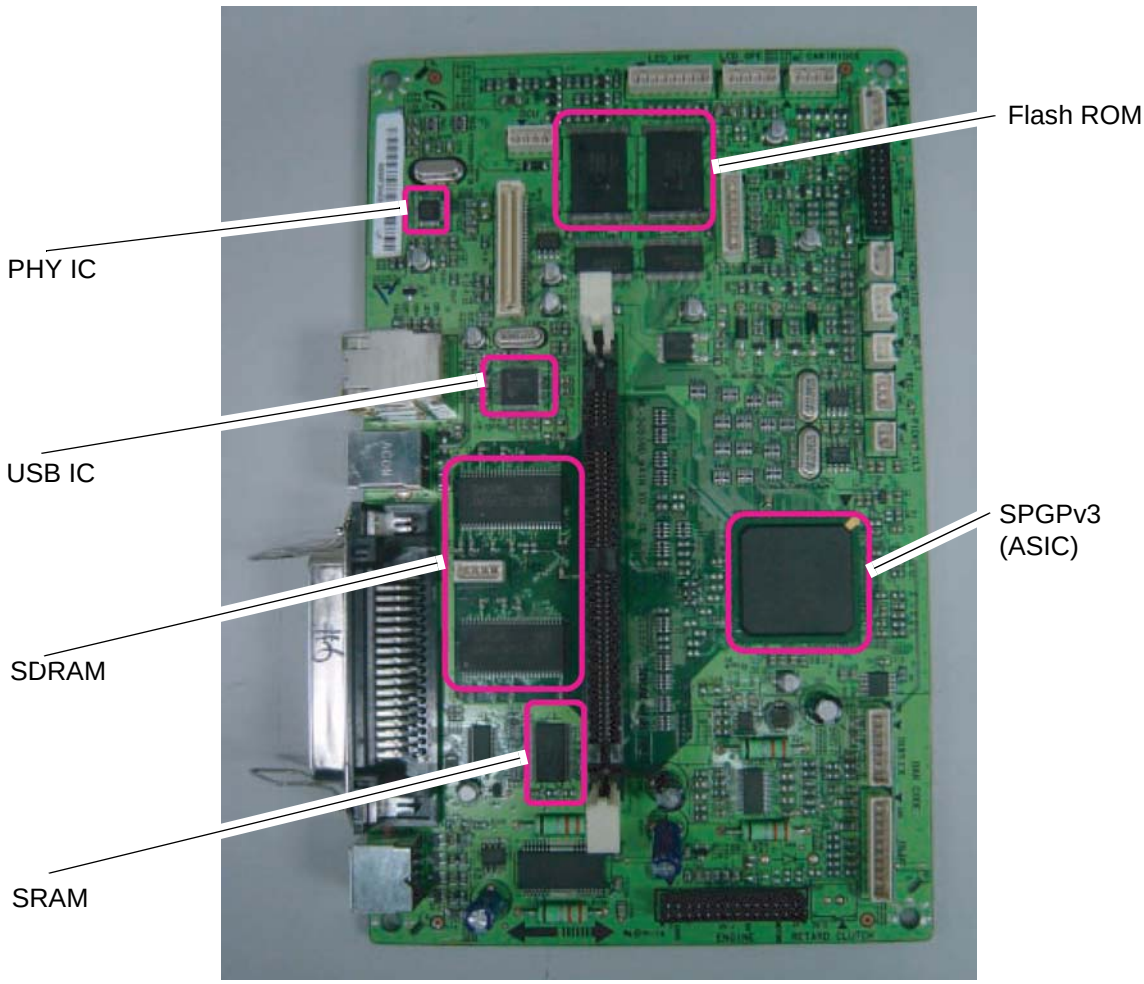


Figure 1

Flash Memory

It stores the system program and downloads system program through the PC Interface.

- Capacity: 16M Byte (NOR Flash)
- Access Time: 90ns
- Page read Time: 25ns

SDRAM

It is used as swath buffer, system working memory area, etc. while Printing.

- Capacity: The 64M Bytes is for this model (64M: Printing System Working Memory Area)

Sensor Input Circuit

- Paper Empty Sensing
  The Paper empty sensor (Photo Interrupter) on the HVPS informs the state of paper to CPU whether it is empty or not with operation of the actuator.
  When cassette is empty, it detects the fact by reading the E20 of CPU, and then informs the fact by displaying the RED.
- MP Sensing
  By operation of Actuator on the frame, an individual MP Sensor (Photo interrupter) informs the state of paper to CPU whether it is empty or not. It reads the D17 of CPU for recognizing paper in MP, and paper is fed from MP if there is.
- Paper Feeding/With Print Cartridge Sensing
  When paper passes the actuator (feed sensor part), it detects the signal of Photo interrupter, informs the paper feeding state to CPU, and then sprays the image data after certain time. If it doesn't detect the feed sensor within 1sec. after paper is fed, paper Jam0 is occurred (LED will be display RED color). The fact whether the developer is inserted or not is detected by CRUM. After the developer is mounted, the sub-CRUM can read the information of print cartridge from contact with CRUM involved in print cartridge. If the information of print cartridge is invalid, it will show invalid sign on a LCD or LED.
- Paper Exit Sensing
  It detects paper state whether paper gets out from the set with operation of exit sensor on the HVPS and actuator on the frame. Paper detects the on/off time of exit sensor by reading D22 of CPU, and the normal operation or jam information is informed to the CPU. The paper JAM2 is informed. (LED will be display RED color)
- Cover Open Sensing
  The Cover open sensor is located on the HVPS. After the front cover is opened, +24VS (DC fan, Solenoid, Main Motor, Polygon motor part of LSU and HVPS), which is supplied to the each unit, is cut off. The cover-open sensing is operated by the D23 of CPU. In case, the red will be ON for informing the facts to user.
- DC FAN / Solenoid Driving
  It is driven by transistor and controlled by D14(FAN MAIN), E16(FAN DUPLEX), C23(PICK-UP CLUTCH), C18(REGICLUTCH), D15(MPF CLUTCH) of CPU. When it is high, the fan is driving by turning on the TR, and it is off when the sleep mode is selected. There are three solenoids, and they are driven by paper pick-up, regi and MPF signal. It is turned on or off by C23, C18, D15 of CPU. The diode protects the driving TR from the noise pulse, which is flown when the solenoid id de-energizing. FAN Driving Circuit is driven by Transistor, and controlled by D14, E16 of CPU.

- Motor Driving

  The main motor driving circuits is on the BLDC Motor Assembly Unit. Main Controller has the interfacing circuits. There is motor driver IC on the motor control board of Motor Assembly Unit.

  The exit motor driving circuits is formed when the driver IC is selected. The AN44060A Motor Driver IC is used in this case. The resistance Rs value for sensing and voltage value for the V reference can be changed by motor driving voltage value. The motor driving voltage is calculated with the following formula.

IN 0, 2	IN 1, 3	Output Current
L	L	Vref / (10*Rs) = Iout
H	L	Vref / (15*Rs) = Iout * 2/3
L	H	Vref / (30*Rs) = Iout * 1/3
H	H	0

  The motor driving circuit is formed when the Driver IC is selected. The A3977 Motor Driver IC is used in this case. The resistance Rs value for sensing and voltage value for the V reference can be changed by motor driving voltage value. The motor driving voltage is calculated with the following formula.

  I = Vref / Rs, wherein Vref is (R1 x 5V) / (R1+R2)

SMPS & HVPS board

The SMPS supplies DC Power to the System.It takes 110V/220V and outputs the +5V, +24V to supply the power to the main board. The HVPS board creates the high voltage of THV/MHV/Supply/Dev and supplies it to the developer part for making best condition to display the image. The HVPS part takes the 24V and outputs the high voltage for THV/MHV/BIAS. The high voltage output is supplied to the toner, OPC cartridge, and transfer roller.

HVPS (High Voltage Power Supply)

- Transfer High Voltage (THV+)

  -Input Voltage: 24 V DC 15%

  -Output Voltage: MAX +5.0KV 5%,(Duty Variable, no loading)

  ->1.2KV 15% (when cleaning,200)

  -Output Voltage Trigger: 6.5

  -Input contrast of the Voltage stability degree: under 5% (fluctuating input 21.6V ~ 26.4V)

  Loading contrast: 5% or less

  -Output Voltage Rising Time: 100 ms Max

  -Output Voltage Falling Time: 100 ms Max

  -Fluctuating transfer voltage with environmental various: +650 V(Duty 10%) ~ 5 KV (Duty 90%)

  -Environment Recognition Control Method: The THV-PWM ACTIVE is transfer active signal. It detects the resistance by recognizing the voltage value, F/B, while permits the environmental recognition voltage.

-Output Voltage Control Method: Transfer Output Voltage is outputted and controlled by changing Duty of THVPWM Signal. 10% Duty: +650V, 90% Duty: +5KV 5%

- Charge Voltage (MHV)
  -Input Voltage: 24 V DC 15%
  -Output Voltage: -1.3KV ~ -1.8KV DC 50V
  -Output Voltage Rising Time: 50 ms Max
  -Output Voltage Falling Time: 50 ms Max
  -Output Loading range: 30 M ~ 1000 M
  -Output Control Signal(MHV-PWM): CPU is HV output when PWM is Low
- Cleaning Voltage (THV-)
  -The (+) Transfer Voltage is not outputted because the THV PWM is controlled with high.
  -The (-) Transfer Voltage is outputted because the THV-Enable Signal is controlled with low
  -The output fluctuation range is big because there is no Feedback control.
- Developing Voltage (DEV)
  -Input Voltage: 24 V DC 15%
  -Output Voltage: -200V ~ -600V DC 20 V
  -Output Voltage Fluctuation range: PWM Control
  -Input contrast of the output stability degree: 5% or less
  Loading contrast: 5% or less
  -Output Voltage Rising Time: 50 ms Max
  -Output Voltage Falling Time: 50 ms Max
  -Output Loading range: 10M ~ 1000 M
  -Output Control Signal (BIAS-PWM): the CPU output is HV output when PWM is low.
- Supply
  - Output Voltage: -400 V ~ -800V DC 50 V(ZENER using, DEV)
  -Input contrast of the output stability degree: under 5% Loading contrast: 5% or less
  -Output Voltage Rising Time: 50 ms Max
  -Output Voltage Falling Time: 50 ms Max
  -Output Loading range: 10 M ~ 1000 M
  -Output Control Signal (BIAS-PWM): the CPU is HV output when PWM is low.

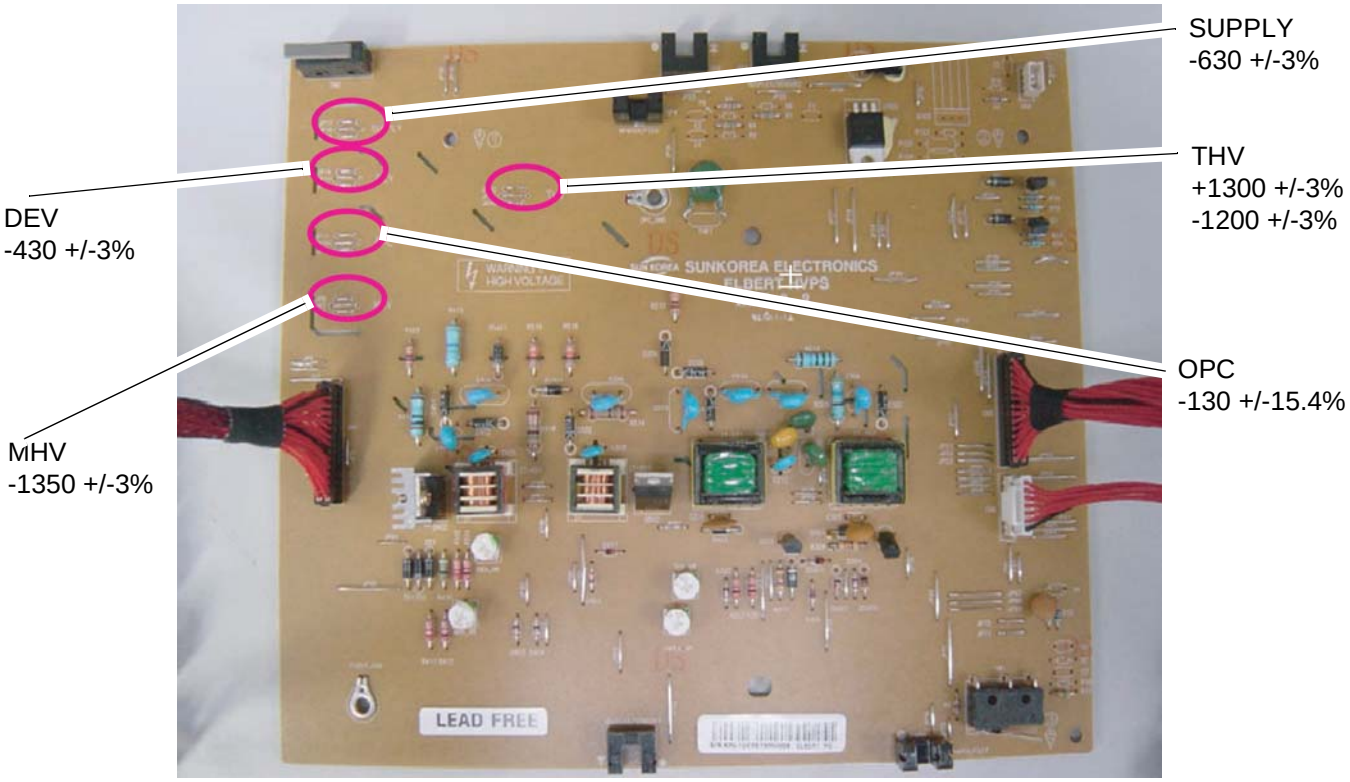


Figure 2

SMPS (Switching Mode Power Supply)

It is the power source of entire system. It is assembled by an independent module, so it is possible to use for common use. It is mounted at the side of the machine. It is consisted of the SMPS part, which supplies the DC power for driving the system, and the AC heater control part, which supplies the power to fuser. SMPS has two output channels. Which are +5V and +24V.

- AC Input
  -Input Rated Voltage: AC 220V ~ 240V AC 110V ~ 127V
  -Input Voltage fluctuating range: AC 198V ~ 264V AC 99V ~ 135V
  -Rated Frequency: 50/60 Hz
  -Frequency Fluctuating range: 47 ~ 63 Hz
  -Input Current: Under 4.0Arms / 2.0Arms (But, the status when e-coil is off or rated voltage is inputted/outputted)

Table 1: Rated output power

NO	ITEM	CH1	CH2	Remark
1	Channel Name	+5V	+24.0V	
2	Connector Pin	CON 35V PIN: 11,13,15 GND PIN: 12,14,16	CON 324V PIN:3,5,7,9 GND PIN:4,6,8,10	
3	Rated Output	+5V 5%(4.75 5.25V)	+24V 10%(21.6 26.4V)	
4	Max. Output Current	3 A	4.4 A	

5	Peak Loading Current	3.6 A	5.3 A	1ms
6	Ripple Noise Voltage	100mVp-p	Under 500mVp-p	
7	Maximum output	15W	105.6W	
8	Peak output	18W	127.2W	1ms
9	Protection for loading shortage and overflowing current	Shut down or Fuse Protection	Shut down or Output Voltage Drop	

Table 2: Consumption power

NO	ITEM	System
1	Stand-By	Less than 130W
2	Printing	Less than 400W
3	Sleep-Mode	Less than 11W

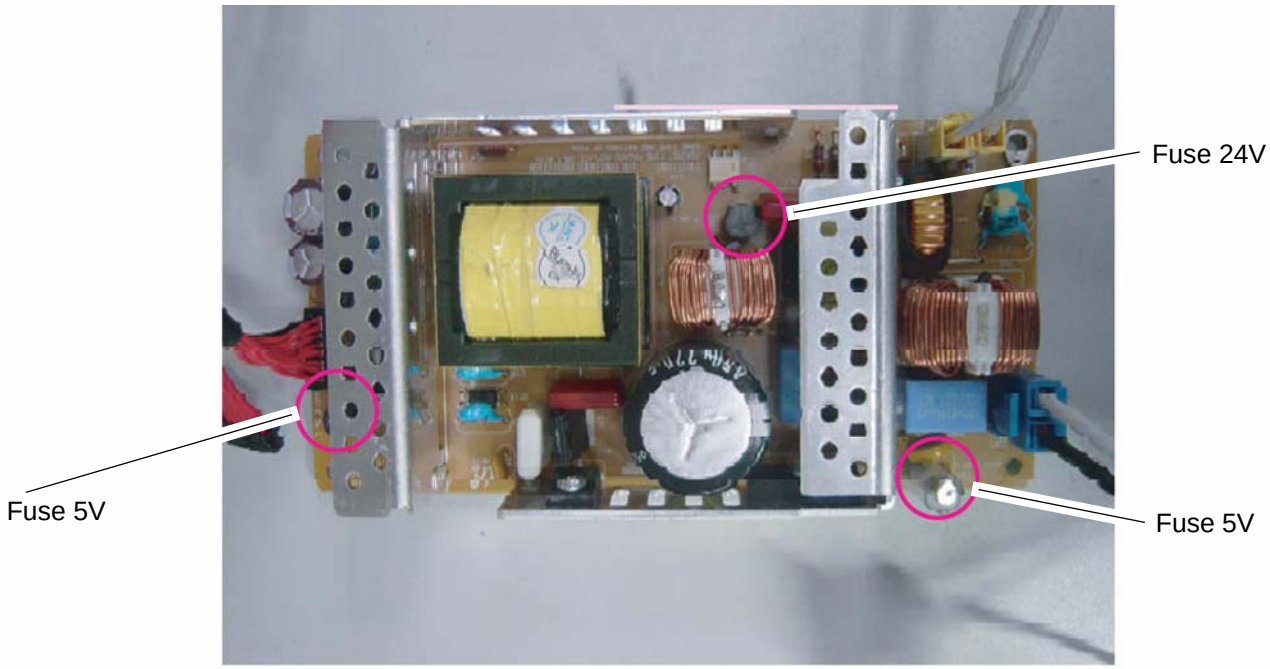


Figure 3

- Length of Power Cord: 1830 50mm
- Power Switch: Use
- Feature
  -Insulating Resistance: 100 or more (at DC 500V)
  -Withstanding Voltage: Must be no problem within 1 min.(at 1000V-LV model / 1500Vac-HV model,10mA)
  -Leaking Current: under 3.5mA
  -Running Current: under 40A PEAK (AT 25, COLD START) under 60A PEAK (In other condi-

tions)
-Rising Time: within 2Sec
-Falling Time: over 20ms
-Surge: Bi-Wave 3kV Normal, 6KV - Common

- Environment Condition
  - Operating temperature range: 0 40
  - Maintaining temperature range: -25 85
  - Preserving Humidity Condition: 30% 90% RH
  -Operating atmospheric pressure range: 1atm
- EMI Requirement: CISPR,FCC, CE, MIC, C-Tick,
- Safety Requirement:IEC950 UL1950, CSA950, C-UL,NOM, TUV, Semko, Nemko, iK, CB, CCC(CCIB), GOST, EPA, Power Save

Fuser AC Power Control

Fuser (e-coil) gets heat from AC power. The AV power controls the switch with the Triac, a semiconductor switch. The ON/OFF control is operated when the gate of the Triac is turned on/off by Phototriac (insulting part). In other words, the AC control part is passive circuit, so it turns the heater on/off with taking signal from engine control part. When the HEATER ON signal is turned on at engine, the LED of PC501 (Photo Triac) takes the voltage and flashes.From the flashing light, the Triac part (light receiving part) takes the voltage, and the voltage is supplied to the gate of Triac and flows into the Triac. As a result, the AC current flows in the e-coil, and heat is occurred. On the other hand, when the signal is off, the PC501 is off, the voltage is cut off at the gate of Triac, the Triac becomes off, and then the e-coil is turned off.

- Triac (Q501) feature: 24A-LV model / 16A-HV model, 600V SWITCHING
- Phototriac Coupler (PC501)
  -Turn On If Current: 15mA ~ 50mA(Design: 16mA)
  -High Repetitive Peak Off State Voltage: Min 600V

Engine F/W

Control Algorithm

- Feeding

  If feeding from a cassette, the drive of the pickup roller is controlled by controlling the solenoid. The on/off of the solenoid is controlled by controlling the general output port or the external output port. While paper moves, occurrence of Jam is judged as below.

Table 4:

ITEM	Description
JAM 0	- After picking up, paper cannot be entered due to paper is not fed. - After picking up, paper entered but it cannot reach to the feed sensor in certain time due to slip, etc. -After picking up, if the feed sensor is not on, re-pick up. After re-picking up, if the feed sensor is not on after certain time, it is JAM 0. **It is a status that the leading edge of the paper doesn't pass the feed sensor.* -Even though the paper reaches to the feed sensor, the feed sensor doesn't be ON. **It is a status that the leading edge of the paper already passes the feed sensor.*
JAM 1	-After the leading edge of the paper passes the feed sensor, the trailing edge of the paper cannot pass the feed sensor after a certain time. (The feed sensor cannot be OFF) - After the leading edge of the paper passes the feed sensor, the paper cannot reach the exit sensor after certain time. (The exit sensor cannot be ON) *The paper exists between the feed sensor and the exit sensor.
JAM 2	-After the trailing edge of the paper passes the feed sensor, the paper cannot pass the exit sensor after certain time.

- Transfer

  The charging voltage, developing voltage and the transfer voltage are controlled by PWM (Pulse Width Modulation). The each output voltage is changeable due to the PWM duty. The transfer voltage admitted when the paper passes the transfer roller is decided by environment recognition. The resistance value of the transfer roller is changed due to the surrounding environment or the environment of the machine, and the voltage value, which changes due to the environments, is changed through AD converter. The voltage value for impressing to the transfer roller is decided by the changed value.
- Fusing

  The temperature change of the heat rollers surface is changed to the resistance value through the thermistor. By converting the voltage value, which impressed to the resistance, to the digital value through the AD converter, the temperature is decided. The AC power is controller by comparing the target temperature to the value from the thermistor.If the value from the thermistor is out of controlling range while controlling the fusing, the error stated in the below table occurs.
- Open Heat Error

  When the engine operates the warm-up process, if the temperature of the fixing unit is not higher than a specified temperature, the engine defines Open Heat Error. When this error is broken out, the engine stops all functions and keeps the error state. Also, the engine informs the error status of the main system. And then the error message is displayed at LCD window or LED informing the error status of the user.
- Low Heat Error

  When the engine is at stand-by, printing or warm-up mode, if the temperature of the fixing unit is lower than the specified temperature at each state and the lower temperature state is maintained during the specified time, the engine defines Low Heat Error. When this error is broken out, the engine stops all functions and keeps it at the error state. Also the

engine informs the error status of the main system. And then the error message is displayed at LCD window or LED informing the error status of the user.

- Over Heat Error

  For overall engine state, if the temperature of the fixing unit is higher than the specified temperature and the temperature state is kept during the specified time, the engine defines Over Heat Error. When this error is broken out, the engine stops all functions and keeps it at the error state. Also, the engine informs the error status of the main system. And then the error message is displayed at LCD window or LED to inform the error status of the user.

  * To recover the heat error: The heat error recovery is operated automatically when the error is only caused by Low Heat Error, not the Heat Errors in Warm-up state and the Over Heat Error. If an error happens, then the engine memorizes a present temperature. In case of Low Heat Error, the maximum heat is supplied to the fixing unit. When a specified time is elapsed, the engine detects the temperature again. If the present temperature is higher than the memorized temperature, the error is recovered. In case of Over Heat Error, no heat is supplied to the fixing unit. When a specified time is elapsed, the engine detects a present temperature again. If the present temperature is a specified degree lower than the memorized temperature, the error is recovered.

- LSU

  LSU receives the image data from PVC or HPVC and make the latent image on OPC surface.
  It uses the dual beam, LD1 and LD2. But the control method of them is the same.
  Just in comparison with the single beam, the dual beam has the half of LSUs frequency.
  ->The frequency of the dual beam = the frequency of the single beam /2.

  The errors related to LSU are as follows:
  * By LReady: When the printing is started, the engine drives the polygon motor of LSU. After the specified time is elapsed, if the motor is not in a ready status, the engine detects the error that the polygon motor is not in a ready status. If this error happens, the engine stops all functions and keeps it at the error state. Also, the engine informs the error status of the main system and the error message is displayed at LCD window to inform the error status of the user.

  * By Hsync: When the polygon motor is ready, the LSU sends out the signal called Hsync and used to synchronize with each image line. So, if the engine does not detect consecutively the signal for a fixed time, it defines the Hsync Error. If this error happens, the engine stops all functions and keeps it at the error state. Also, the engine informs the error status of the main system and then the error message is displayed at LCD window to inform the error status of the user.

  LSU Error Recovery: If the LReady or Hsync error happens, the paper exits out before hand. The engine mode is changed to recovery mode and the engine informs the main system of the engine mode. And the engine checks the LSU error. If the error doesn’t happen, the printing job will be proceeding.

S/W Descriptions

Overview

The software of the system is constructed with

1. Host Software part that the application software operated in Window and Web Environment, and
2. Firmware parts that is a Embedded software controls printing job.

Architecture

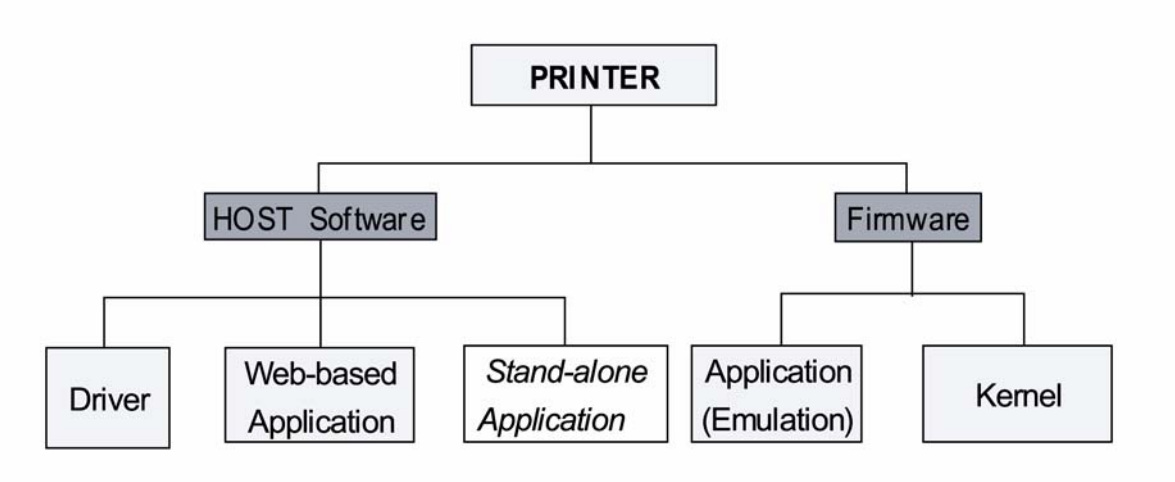


Figure 5

Host Software is made up of

1. Graphic User Interface that offers the various editing functions to user in Host,
2. Driver that translates the received document to a Printing Command language which printer can understand and transfers data to spooler,
3. Stand-alone Application that offers the various printing application, DMS (Document Management System), RCP (Remote Control Panel), Printer Status Monitor, Network Management in Window system,
4. Web-based-Application that offers the same functions as Stand-alone Application and RDC (Remote Diagnosis Control) in Web environment.

Firmware is made up of

1. Application (Emulation) that is a interpreter translate data received from Host to a printing language (PCL, PS, GDI, etc.) to be able to make the user to take same output as originally one what composed in Host.
2. Kernel that control and management the whole procedure include of Control flow and Printing Job before transfer to Engine system.

Data and Control Flow

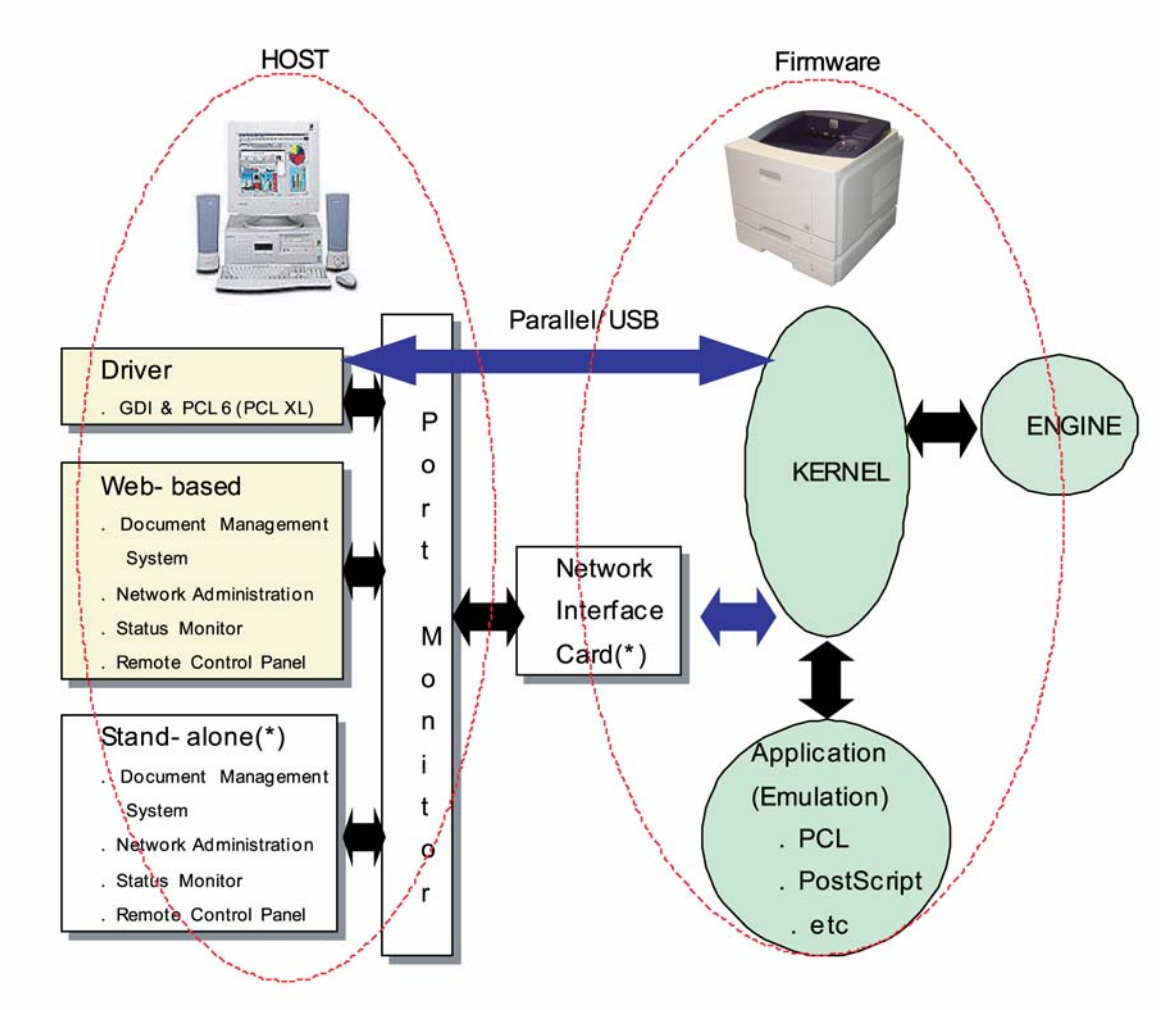


Figure 6

The above Block Diagram is explained that:

Host Side is made up of

1. Driver that is Windows application software translate printed data to one of printer language and create spooler file.
2. Web-based Application that offer a various printer additional functions, management of printing job, printer administration, Status monitor to monitoring the printer status by real time in Web, independent environment on OS.
3. Stand-alone Application that is a similar Window software as same as above 2.
4. Port Monitor that manages the network communication between spooler and Network Interface Card, or various additional application and Network Interface Card, (this is, at first, make communication logical port, manage the data, transfer them from spooler to network port, and offer the result of printing).

Firmware Side is made up of

1. Network Interface Card is that relay the communication between Host and kernel using various network protocol,
2. Kernel is that manages the flow control of emulation procedure, receiving data from Host or Network card and printing with engine & rendering job,
3. Emulation is that interprets the various output data from selected emulation,
4. Engine is that prints rendered bit-map data to paper with required size and type by Kernel.

And then, for Job Spooling function for Multi-User, Multi-Printing that is occurred in Network printing and various additional printing functions, this Kernel use max. 10 Queuing systems in a memory.

In Printing, the two procedures are

1. Case of using USB Port
   - After user start to print the wanted document to PCL string or compressed GDI bit-map data, Driver translate the all graphic data of it and send data to host spooler. And then the spooler sends the data stream to the printer via USB port.
   - Kernel receives this data from Host, and then select emulation fit to data and start selected one. After emulation job end, Kernel sends the output bit-map data to Engine using Printer Video Controller (by clock type for LSU).
   - Engine print the received data to required paper with the sequential developing process.
2. Case of using Network Interface Card
   - After user start to print the wanted document to PCL string or compressed GDI bit-map data, Driver translate the all graphic data of it and send data to host spooler.
   - If so, Port monitor managing network port receives data from spooler and sends a data stream to the Network Interface Card.
   - Network interface card receives it and send to Kernel part,
   - Kernel receives this data from Host, and then select emulation fit to data and start selected one. After emulation job end, Kernel sends the output bit-map data to Engine using Printer Video Controller (by clock type for LSU).
   - Engine print the received data to required paper with the sequential developing process.

The additional printing function are realized in

(1) Web environment

(2) Window environment.

On addition, Kernel informs a status of printing status and printer status to user made printing job with the Status Monitor.

GP 4 Screws Used in the Printer

No.	Location	Description & Specification	QT'y
S1(BH Short)		SCREW-MACHINE;BH,+,M3,L6,ZPC(WHT),SWRCH18A,-,	3
		SCREW-MACHINE;BH,+,M3,L6,ZPC(WHT),SWRCH18A,-,	2
S2(PH Long)	SHIELD+PARRALLEL PORT	SCREW-MACHINE;PH,+,M3,L8,NI PLT,SWRCH18A,FP,	2
S3(WH Long)		SCREW-TAPPING;PWH,+,-,2,M3,L8,ZPC(BLK),SWRCH18A,	4
		SCREW-TAPPING;PWH,+,-,2,M3,L8,ZPC(BLK),SWRCH18A,	1
S4(WH Long)	COVER MIDDLE+FRAME BASE	SCREW-TAPTITE;PWH,+,B,M3,L10,NI PLT,SWRCH18A	6
	COVER REAR	SCREW-TAPTITE;PWH,+,B,M3,L10,NI PLT,SWRCH18A	4
	COVER SIDE L	SCREW-TAPTITE;PWH,+,B,M3,L10,NI PLT,SWRCH18A	1
	COVER SIDE R	SCREW-TAPTITE;PWH,+,B,M3,L10,NI PLT,SWRCH18A	1
	COVER TOP	SCREW-TAPTITE;PWH,+,B,M3,L10,NI PLT,SWRCH18A	4
	DUP DRIVE ASS'Y+FRAME BASE	SCREW-TAPTITE;PWH,+,B,M3,L10,NI PLT,SWRCH18A	3
	DUP FAN+FRAME BASE	SCREW-TAPTITE;PWH,+,B,M3,L10,NI PLT,SWRCH18A	1
	MAIN DRIVE ASS'Y+FRAME BASE	SCREW-TAPTITE;PWH,+,B,M3,L10,NI PLT,SWRCH18A	6
	SHIELD CONTROL-LER+FRAME BASE	SCREW-TAPTITE;PWH,+,B,M3,L10,NI PLT,SWRCH18A	3
	SHIELD SMPS+FRAME BASE	SCREW-TAPTITE;PWH,+,B,M3,L10,NI PLT,SWRCH18A	3
	Frame Base+Fuser	SCREW-TAPTITE;PWH,+,B,M3,L10,NI PLT,SWRCH18A	4
	frame assy	SCREW-TAPTITE;PWH,+,B,M3,L10,NI PLT,SWRCH18A	33
		SCREW-TAPTITE;PWH,+,B,M3,L10,NI PLT,SWRCH18A	1
	FRAME MP+BRACKET FEED	SCREW-TAPTITE;PWH,+,B,M3,L10,NI PLT,SWRCH18A	2
	FRAME MP+HOLDER IDLE FEED	SCREW-TAPTITE;PWH,+,B,M3,L10,NI PLT,SWRCH18A	2
	FRAME MP+SOLENOID	SCREW-TAPTITE;PWH,+,B,M3,L10,NI PLT,SWRCH18A	1

		SCREW-TAPTITE;PWH,+,B,M3,L10,NI PLT,SWRCH18A	3
	Frame Dup+Bracket Align Dup	SCREW-TAPTITE;PWH,+,B,M3,L10,NI PLT,SWRCH18A	2
	Frame Dup+Guide Upper Dup	SCREW-TAPTITE;PWH,+,B,M3,L10,NI PLT,SWRCH18A	4
	COVER FRONT+HOLDER LOCKER	SCREW-TAPTITE;PWH,+,B,M3,L10,NI PLT,SWRCH18A	2
	COVER MIDDLE+CAP SUB ACTUATOR	SCREW-TAPTITE;PWH,+,B,M3,L10,NI PLT,SWRCH18A	1
	PBA+COVER KEY MENU_LCD	SCREW-TAPTITE;PWH,+,B,M3,L10,NI PLT,SWRCH18A	4
	COVER CAS-SETTE+FRAME CASSETTE	SCREW-TAPTITE;PWH,+,B,M3,L10,NI PLT,SWRCH18A	2
S5(WH Long)	BLDC MOTOR+BRKT MOTOR	SCREW-TAPTITE;PWH,+,-,S,M4,L8,ZPC(WHT),SWRCH18A,	4
S6(BH Short)	PLATE KNOCKUP+CAM KNOCKUP	SCREW-TAPTITE;BH,+,-,B,M3,L6,ZPC(WHT),SWRCH18A,	1
S7(WH Short)	TRAY ASF INPUT UPPER+GEAR PINION	SCREW-TAPTITE;PWH,+,-,B,M3,L6,ZPC(WHT),SWRCH18A,	1
		SCREW-TAPTITE;PWH,+,-,B,M3,L6,ZPC(WHT),SWRCH18A,	2
	LCD+COVER KEY MENU_LCD	SCREW-TAPTITE;PWH,+,-,B,M3,L6,ZPC(WHT),SWRCH18A,	2
	GEAR PINION+FRAME CASSETTE	SCREW-TAPTITE;PWH,+,-,B,M3,L6,ZPC(WHT),SWRCH18A,	1
S8(BH Short)	BRKT MOTOR+BRKT GEAR	SCREW-TAPTITE;BH,+,-,S,M3,L6,ZPC(WHT),SWRCH18A,	4
	SHIELD CONTROL-LER+PBA	SCREW-TAPTITE;BH,+,-,S,M3,L6,ZPC(WHT),SWRCH18A,	3
	SHIELD SMPS+SMPS	SCREW-TAPTITE;BH,+,-,S,M3,L6,ZPC(WHT),SWRCH18A,	4
	HVPS+SHIELD HVPS	SCREW-TAPTITE;BH,+,-,S,M3,L6,ZPC(WHT),SWRCH18A,	3
		SCREW-TAPTITE;BH,+,-,S,M3,L6,ZPC(WHT),SWRCH18A,	2
		SCREW-TAPTITE;BH,+,-,S,M3,L6,ZPC(WHT),SWRCH18A,	4
S9(BH Short)		SCREW-TAPTITE;BH,+,-,B,M3,L8,ZPC(BLK),SWRCH18A,	8
		SCREW-TAPTITE;BH,+,-,B,M3,L8,ZPC(BLK),SWRCH18A,	5
		SCREW-TAPTITE;BH,+,-,B,M3,L8,ZPC(BLK),SWRCH18A,	10
S10(BH Long)	SHIELD SMPS+EARTH HARNESS	SCREW-TAPTITE;BH,+,-,S,M4,L6,ZPC(WHT),SWRCH18A,	1

S11(BH Short)	LSU+FRAME BASE	SCREW-TAPTITE;BH,+,B,M4,L10,NI PLT,SWRCH18A	4
S12(BH Long)		SCREW-TAP-TITE;PH,+,WSP,B,M3,L10,ZPC(WHT),SWRCH 18A,	3

GP 5 System Set-up

This chapter provides step by step information on setting up the printer.This chapter includes:

- Using control panel menus
- Menu overview
- Printing a demo page
- Changing the display language
- Using toner save mode

Using control panel menus

A number of menus are available to make it easy for to change the printer settings. The diagram shows the menus and all of the menu items available in each menu.

Accessing control panel menus

The printer can be controlled from the control panel. The control panel menus can be set while the printer is in use.

1. Press Menu until the valid menu appears on the bottom line of the display and press OK.
2. Press the Scroll buttons until the desired menu item appears and press OK.
3. If the menu item has sub menus, repeat step 2.
4. Press the Scroll buttons to access the desired setting option or the required value.
5. Press OK to save the selection. An asterisk (*) appears next to the selection on the display, indicating that it is now the default.
6. Press Stop to return to Standby mode. After 60 seconds of inactivity (no key being pressed), the printer automatically returns to Standby mode.

Menu overview

The control panel menus are used to configure the printer. The control panel provides access to the following menus:

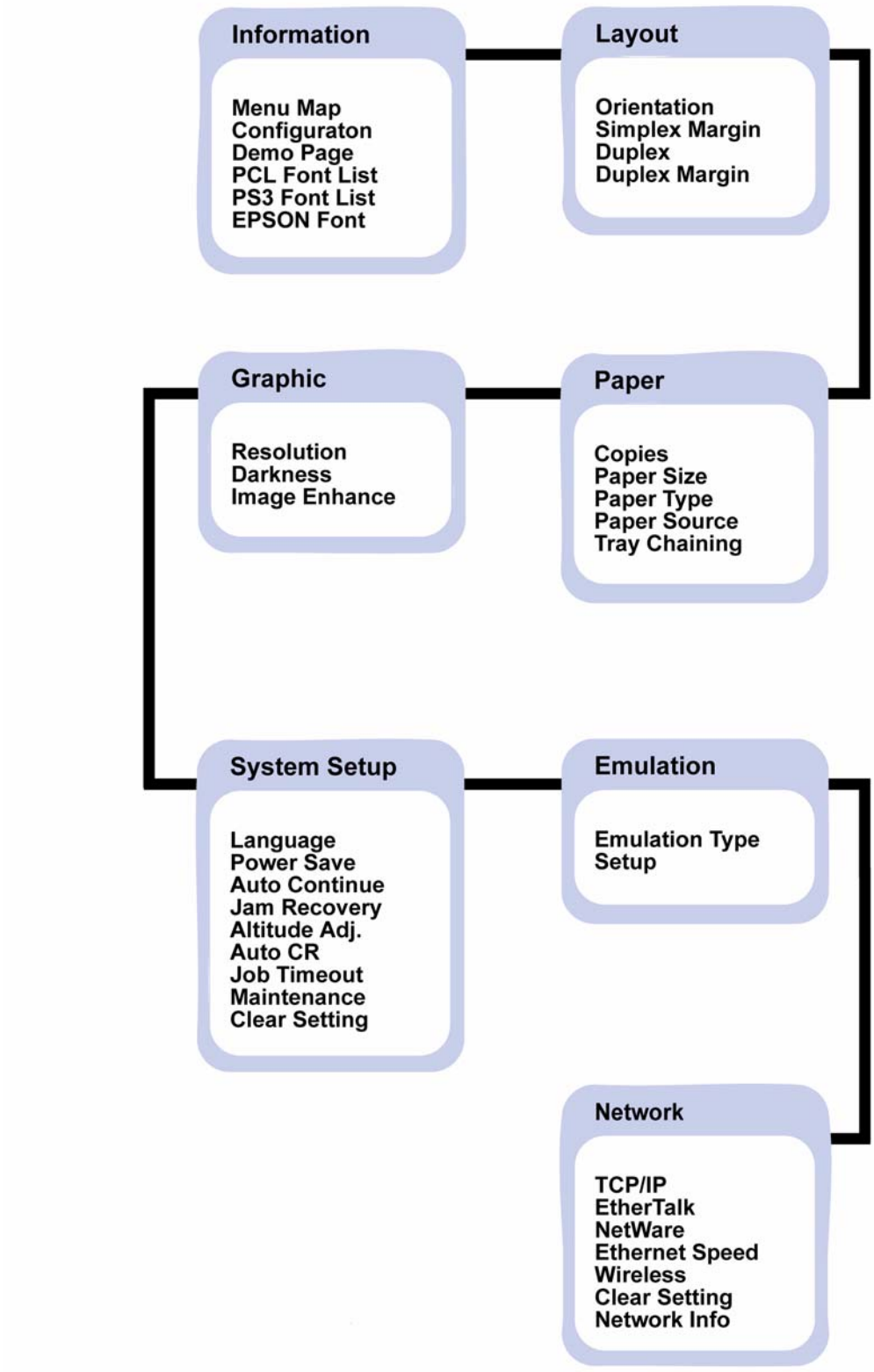

Information
Menu Map
Configuraton
Demo Page
PCL Font List
PS3 Font List
EPSON Font
Layout
Orientation
Simplex Margin
Duplex
Duplex Margin
Graphic
Resolution
Darkness
Image Enhance
Paper
Copies
Paper Size
Paper Type
Paper Source
Tray Chaining
System Setup
Language
Power Save
Auto Continue
Jam Recovery
Altitude Adj.
Auto CR
Job Timeout
Maintenance
Clear Setting
Emulation
Emulation Type
Setup
Network
TCP/IP
EtherTalk
NetWare
Ethernet Speed
Wireless
Clear Setting
Network Info

Figure 1

Basic Operation of Panel

Status" LED		Description
Off		Power Off / Sleep Mode (When data receive it'll Wake-up)
Green	On	Ready status
	Blink	Blink Slowly: Data Comm. status Blink Fast: Printing status
Red	On	Error which needs user action (Toner Empty, Paper Jam, Paper Empty, Cover Open etc.)
	Blink	Recoverable Error (Paper Mismatching, Manual printing in MP Tray) Warning status Warning just like supplies exchange (Toner Low etc.)

Error Type	Legacy models Error	Platform model Error
Recoverable Error	Error which can be recoverable Ex) Jam, Paper Empty, etc.	Error which doesn't need any special user actions Ex) Paper Mismatching, Manual printing in MP Tray
Error	Just like hardware error which can not be fixed even if user does special action Ex) Hsync Error, LSU Error, etc.	Including provider service error which need some special user or provider action sEx) Toner Empty, Paper Jam, Paper Empty, Cover Open, etc.
Assert behaviour	LCD model - It shows the task name and the lines in LCD display	LCD model - It shows the task name and the lines in LCD display

Operation Map

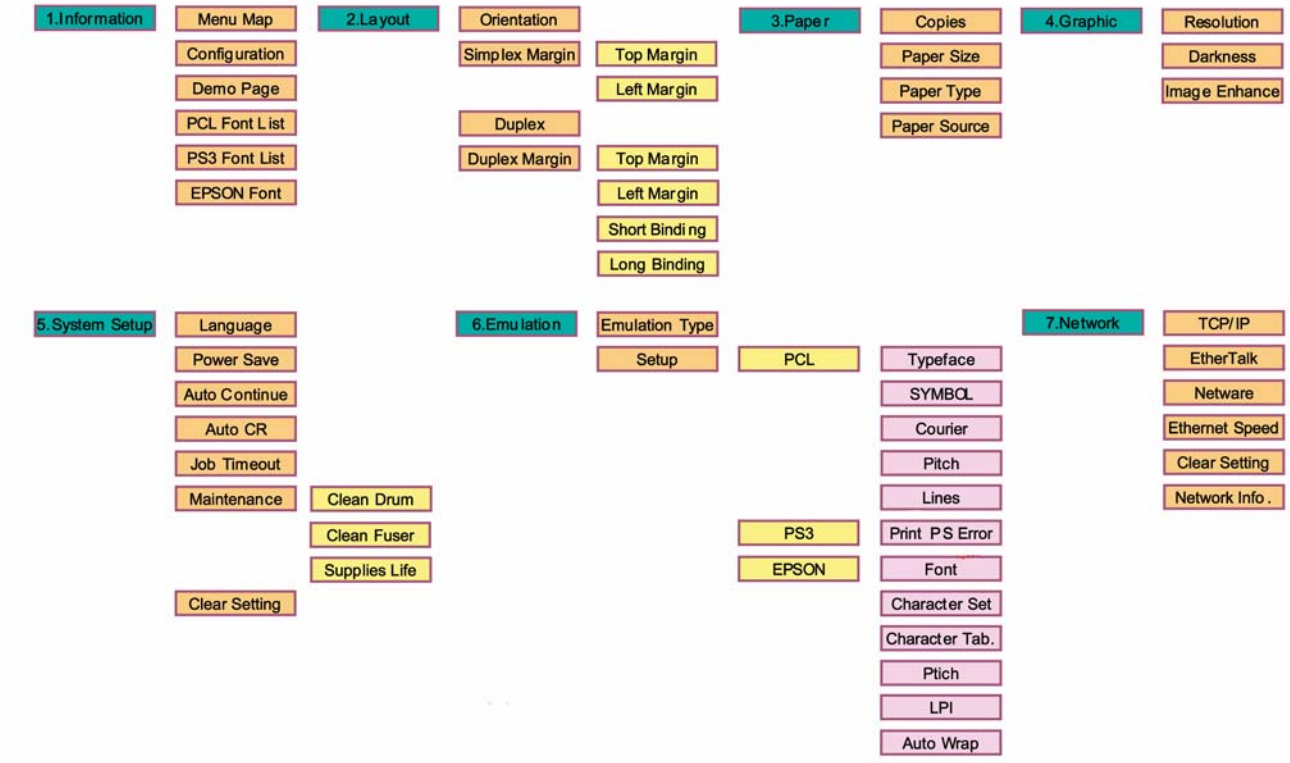


Figure 2

GP 6 Download and Reset Firmware

Firmware download method		
Normal Download method	LED Panel	1. In Dos Prompt types "Usblist2 [Rom file name]" and Press Enter 2. Status LED Slow blink 3. Status LED & Toner Save LED are both blink 4. When download complete, set will be automatically power On/Off and it'll Warming Up
	LCD Panel	1. In Dos Prompt types "Usblist2 [Rom file name]" and Press Enter 2. In LCD "Flash Upgrade..." message will be show up. 3. In LCD "Update Image Please Wait..." message will be show up. 4. When download complete, set will be automatically power On/Off and it'll Warming Up
Boot Download method	LED Panel	1. While Pressing Stop key, Power On the Printer 2. In Dos Prompt types "Usblist2 [Rom file name]" and Press Enter 3. Status LED ¡ Slow blink 4. Status LED & Toner Save LED are both blink 5. When download complete, set will be automatically power On/Off and it'll Warming Up
	LCD Panel	1. While Pressing Stop key, Power On the Printer 2. After verify the message "Download Mode Press Stop key" Press Stop Key 3. Verify the message "Download Mode Plese Send IMG..." 4. In Dos Prompt types "Usblist2 [Rom file name]" and Press Enter 5. In LCD "Update Image Please Wait..." message will be show up. 6. When download complete, set will be automatically power On/Off and it'll Warming Up
Reset method		
LED Panel		1. In LCD "Update Image Please Wait..." message will be show up. 2. Status LED Slow blink→Fast blink then print out configuration page 3. Check the OS version and total page value is "0" 4. Please set power On/Off
LCD Panel		1. In LCD "Update Image Please Wait..." message will be show up. 2. In LCD message Ready→Printing then print out configuration page 3. Check the OS version and total page value is "0" 4. Please set power On/Off

Figure 1

Firmware Upgrade Method

If the firmware needs to be upgraded, the firmware file and usbprn file are requested.

Check that the machine is in a "Ready" condition with the power on. The firmware can be upgraded by the following methods:

1. CentreWare Internet Services

2. USB Cable
- Save the firmware file to the laptop.
- Connect a USB cable between the port on the rear of the machine and the laptop.
- Drag and drop the upgrade file (.hd) onto the dltool.exe icon.
- A DOS command window will open and the upgrade file will be submitted to the machine.
- The upgrade should complete in approximately 5 minutes.

3. USB Cable Case (Save attached file at certain directory)
- Start Download Rom file "usbprbs b255_706.fls" on Dos Mode and push the enter key.
- Once Download is finished, "Reset Printer" is indicated on LCD window.
- Download finished, power ON/OFF.

GP 7 Tips for Avoiding Paper Jams

By selecting the correct media types, most paper jams can be avoided.

- Ensure that the adjustable guides are positioned correctly.
- Do not overload the tray. Ensure that the paper level is below the paper capacity mark on the inside wall of the tray.
- Do not remove paper from the tray while your printer is printing.
- Flex, fan, and straighten paper before loading.
- Do not use creased, damp, or highly curled paper.
- Do not mix paper types in a tray.
- Use only recommended print media.
- Ensure that the recommended print side of print media is facing down in the tray, or facing up in the multi-purpose tray.
- If paper jams occur frequently when you print on A5-sized paper: Load the paper into the tray with the long edge facing the front of the tray.

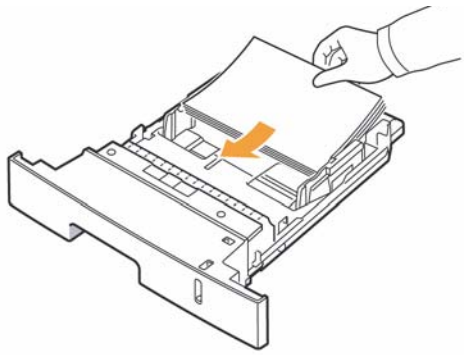


Figure 1

In the printer properties window, set the page orientation to be rotated 90 degrees.

GP 8 Acronyms and Abbreviations

The table below explains the abbreviations and acronyms used in this service manual. Where abbreviations or acronyms are used in the text please refer to this table.

Table 1: Acronyms and Abbreviations

Abbreviations	Explanation
AP	Access Point
AC	Alternating Current
APC	Auto Power Control
ASIC	Application Specific Integrated Circuit
ASSY	Assembly
BIOS	Basic Input Output System
BLDC	Brush-less Direct Current
CMOS	Complementary Metal Oxide Semiconductor
CN	Connector
CON	Connector
CPU	Central Processing Unit
dB	decibel
dbA	decibel A
dBM	decibel milliwatt
DC	Direct Current
DCU	Diagnostic Control Unit
DPI	Dot per Inch
DRAM	Dynamic Random Access Memory
DVM	Digital Voltmeter
ECP	Enhanced Capability Port
EDC	Embedded Diagnostic control
EEPROM	Electronically Erasable Programmable Read Only Memory
EMI	Electro Magnetic Interference
EP	electrophotographic
EPP	Enhanced Parallel Port
FPOT	First Printout Time
F/W	Firmware

Table 1: Acronyms and Abbreviations

Abbreviations	Explanation
GDI	Graphics device interface
GND	Ground
HBP	Host Based Printing
HDD	Hard Disk Drive
H/H	High temperature and high marshy place
HV	High voltage
HVPS	High voltage power supply
I/F	Interface
I/O	Input and Output
IC	Integrated circuit
IDE	Intelligent Drive electronics or Imbedded Drive Electronics
IEEE	Institute of Electrical and Electronics Engineers. Inc
IPA	Isopropy Alcohol
IPM	Images Per Minute
LAN	Local Area Network
lb	pound(s)
LBP	Laser Beam Printer
LCD	Liquid Crystal Display
LED	Light Emitting Diode
L/L	Low temperature and low marshy place
LSU	Laser Scanning Unit
MB	megabyte
MHz	megahertz
MPF	Multi Purpose Feeder
NIC	Network Interface Card
N/N	Normal temperature and normal mashy place
NVRAM	nonvolatile random access memory
OPC	Organic Photo Conductor
OPE	Operate Panel Equipment
PBA	Printed Board Assembly

Table 1: Acronyms and Abbreviations

Abbreviations	Explanation
PCL	Printer Command Language, Printer Control Language
PDL	Page Description Language
PPM	Page Per Minute
PPS	Pulse Per Second
PS	Post Script
PTL	Pre-Transfer Lamp
PWM	Pulse Width Modulation
Q-PID	Quick Printer Initiating Device
Q’ty	quantity
RAM	Random Access Memory
ROM	Read Only Memory
SCF	Second Cassette Feeder
SMPS	Switching Mode Power Supply
Spool	Simultaneous Peripheral Operation Online
SW	switch
Sync	syncronous or syncronization
USB	Universal Serial Bus
WECA	Wireless Ethernet Compatibility Alliance

GP 9 Selecting Printer Locations

Leave enough room to open the printer trays, covers, and allow for proper ventilation. (see diagram below)

Provide the proper environment:

-A firm, level surface

-Away from the direct airflow of air conditioners, heaters, or ventilators

-Free of extreme fluctuations of temperature, sunlight, or humidity

-Clean, dry, and free of dust

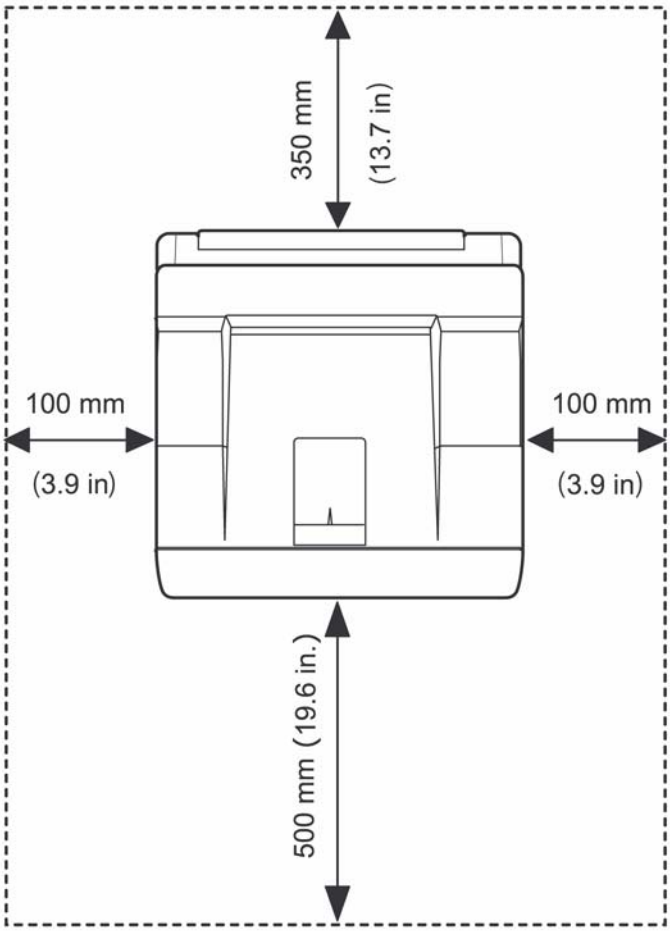


Figure 1

GP 10 Parts Life Cycle Maintenance Table

Supplies	Life Cycle	Condition	Engine Condition	LCD Indication	Customer Panel Manage	Responding
Print Cartridge	4K: For Product 10K: For Sale	Toner Low	Warning	Ready Low Toner	-	10% Remains
		Toner Empty	Warning	Ready Toner	-	Initialized at toner change
		Toner uninstalled				
Fuser	80K(page): Simplex	Exhausted	No Indication	No Indication	Replaced at Exhausted	
Transfer Roller	70K(page): Simplex	Exhausted	No Indication	No Indication	Replaced at Exhausted	
PickUP Roller	150K(page): Simplex	Exhausted	No Indication	No Indication	Replaced at Exhausted	

Print Cartridge

1. Print Cartridge Main Defects
   - White Point, Black Point: White or Black point on printing image
   - Image contamination: Dirty printing image
   - Image Fainted: Entire Image is fainted and vertical white line emerge
   - Black Line: Vertical black line emerge on printing image
2. Defect Symptoms

Symptoms	Criterion	Remarks
White, Black Point	Clean Up OPC (10 times), if disappeared, no failure. - If continuous, failure	System Setup -> Maintenance-> Clean Drum
Image contamination (Toner leakage)	Dirty printing image or contaminated reverse side - Clean up OPC (10 times) and inside of machine with cloth, if disappeared, no failure.	
Image Fainted	After shake cartridge right and left 5~6 times, if printing image is not fainted, no failure. (Toner Exhausted)	
Vertical Black Line	Vertical thin line emerge, if cartridge is scratched. - (Customer fault)	

GP 11 Print Cartridge Service

It is not guaranteed for the default caused by using other print cartridge other than the cartridge supplied by Xerox or caused by non-licensed refill production.

Precautions on Safe Keeping of Print Cartridge

Excessive exposure to direct light more than a few minutes may cause damage to the cartridge.

Service for the Life of Print Cartridge

If the printed image is light due to the life of the toner, you can temporarily improve the print quality by redistributing the toner (Shake the print cartridge), however, you should replace the print cartridge to solve the problem thoroughly.

Distinguish Function for Choice Cartridge

An EEPROM is mounted to a cartridge for distinguishing a choice print cartridge. Items written in below are detected by checking up memory information. If the data of the EEPROM is broken, it cannot be detected.

1. Detecting existence of a print cartridge: It detects whether a print cartridge is mounted or not.
2. Detecting a serial number of a print cartridge.
3. Detecting a print cartridge supplying company: If it is not original, it is not operated.
4. Detecting an OPC rotating counter: It detects the life span of an OPC drum.

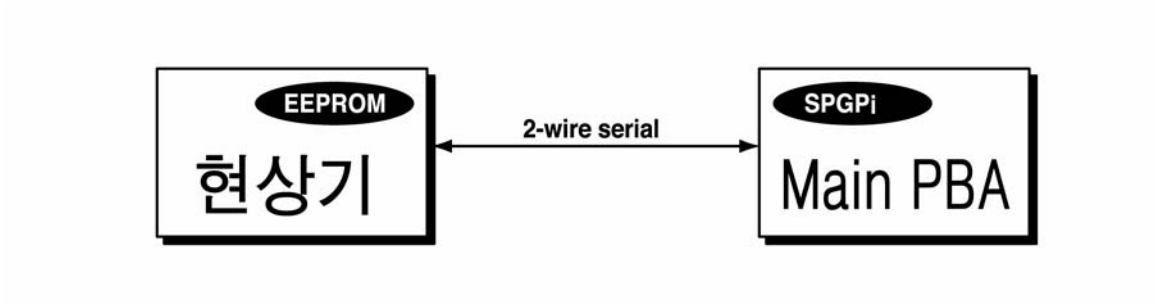


Figure 1

Distinguish a refilled cartridge

1. Check whether One-way screw is damaged or not
2. Check the cartridge on configuration sheet (Print out the self-test configuration): Manufacture date and serial number of print cartridge are different (permissible range: +/- 1).

Error message (LCD window) related in a toner sensor

It explains a message related in toner sensor in a LCD.

Invalid Toner

- Contents: It is displayed when a supplier is different between a print cartridge and a machine. If this message is shown up, a printing process cannot operate.

-Solution: Install a suitable print cartridge (the same supplier's). (A unique key has been applied.)

Low Toner

- Contents: This message shows up when a message "remaining toner: 10%" is displayed in a cartridge count information.

-Solution: It means that a toner in the print cartridge has been almost ended. Prepare the new print cartridge.

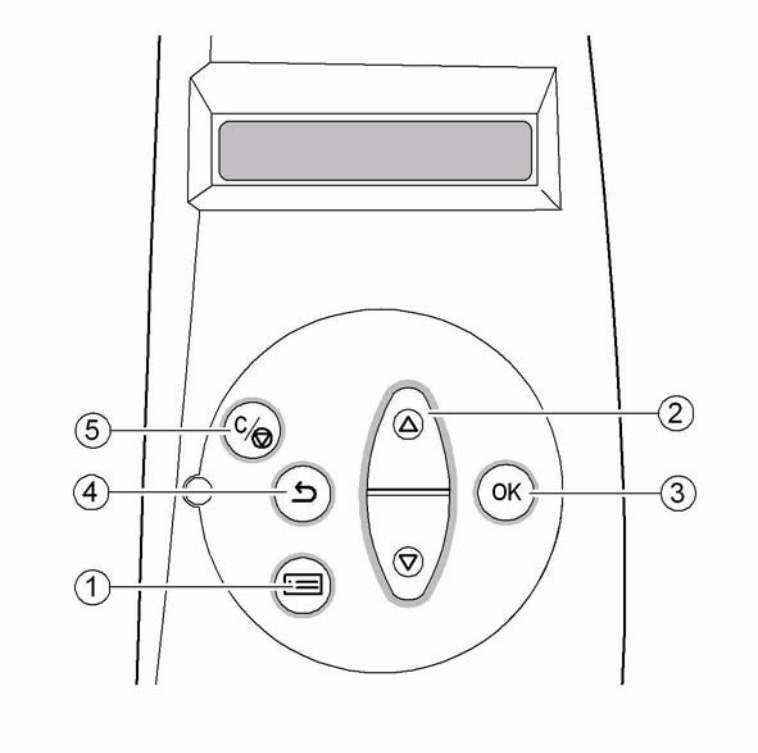
Replace Cartridge

- Contents: It means the life span of a print cartridge (except a toner part) has been ended. Even though a case that a toner is refilled, the rest of major parts have been ended, so entire print cartridge might be replaced.

- Solution: If an Print Cartridge Life cycle Problem, in a worst case, a toner overflows and it may cause a system fail. Therefore, recommend a user to replace a print cartridge.

GP 12 Control Panel

Control Panel Functions



1. **Menu:** Enters menu mode and scrolls through the available menus.
2. **Scroll Buttons:** Scroll through the options available in the selected menu and increase or decrease values.
3. **OK:** Confirms the selection on the display.
4. **Back:** Sends you back to the upper menu level.
5. **Stop:** Stops an operation at any time.

GP 13 Service Log

Service Log

Use the service log to record all service procedures. The service log is included at the end of the manual.

7 Wiring Data

WD 1 Block Diagram 7-3
WD 2 Connection Diagram 7-4

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WD 1 Block Diagram

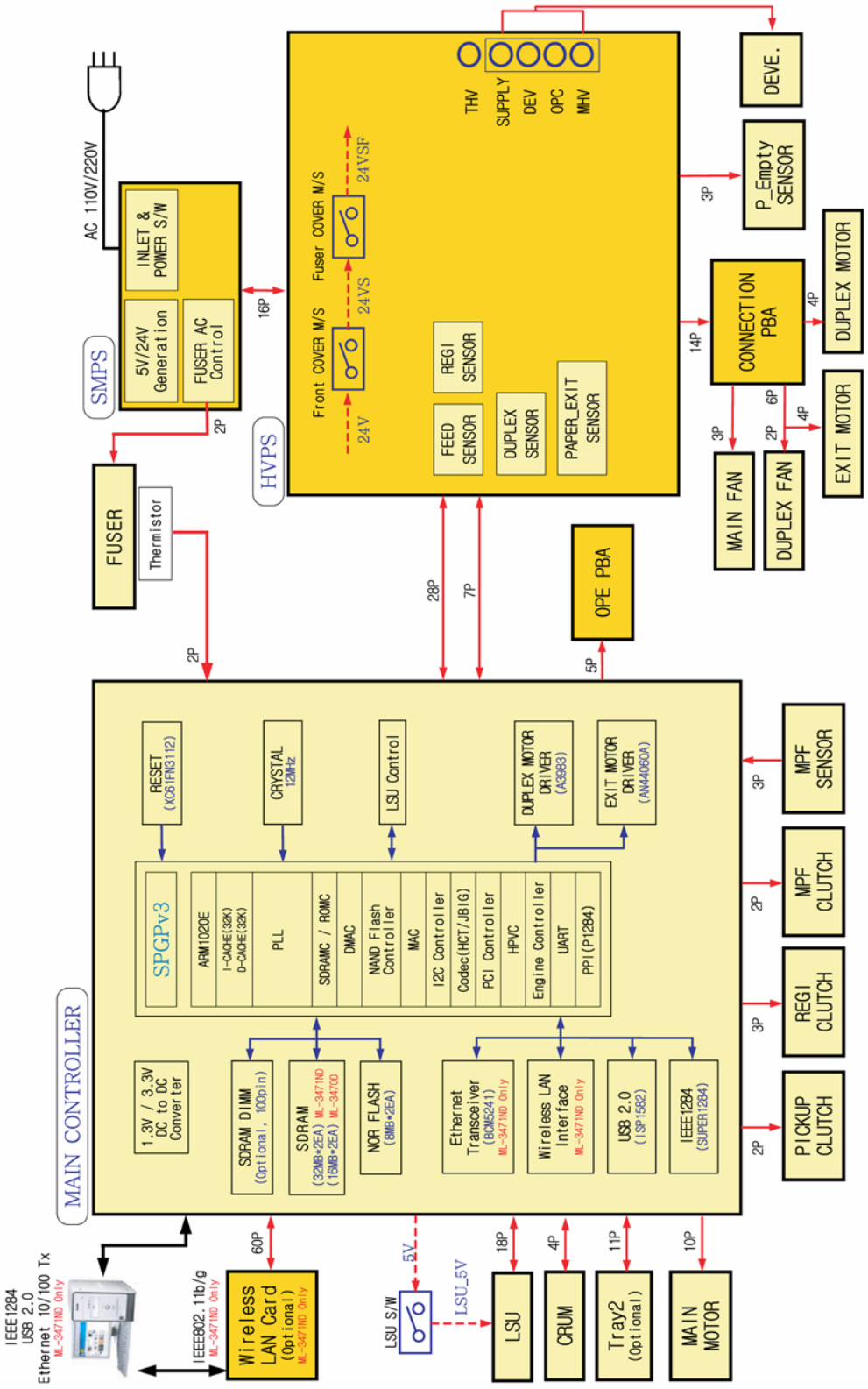

Figure 1

WD 2 Connection Diagram

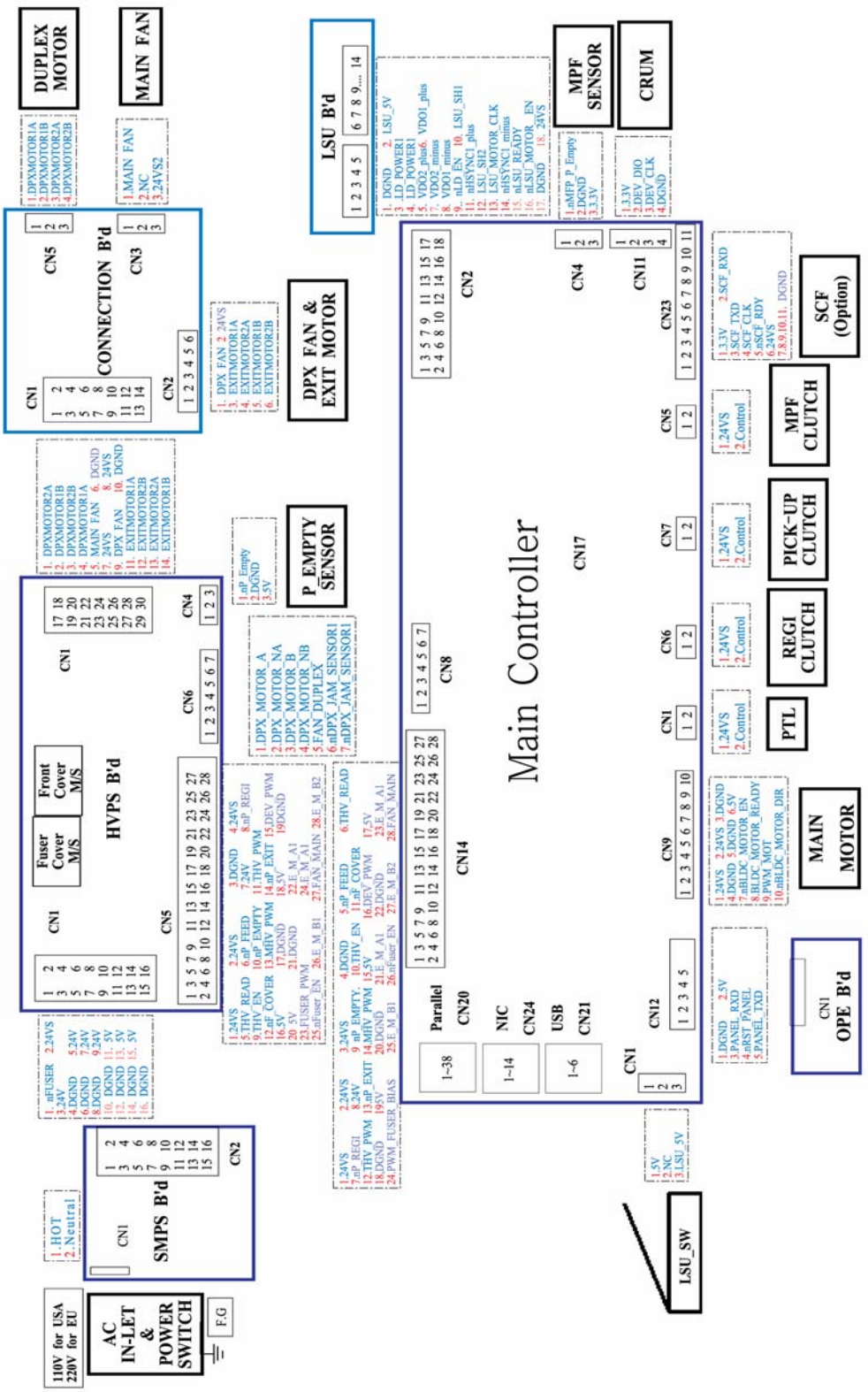

Figure 2

XEROX			ADF					OPTICS							FUSER							XERO						PAPER FEED							MISC					
Serial Number	Account Data	Key Op																																						
Date	Meter	CSE																																						
1																																							
Problem	Subsystem	Inc	PLEASE PRINT																																					
2																																							
Problem	Subsystem	Inc																																						
3																																							
Problem	Subsystem	Inc																																						
4																																							
Problem	Subsystem	Inc																																						
5																																							
Problem	Subsystem	Inc																																						

CONFIDENTIAL (when filled in)

EHS 700 - Health & Safety Incident Report Form
for Incidents Involving a Xerox Product

For incidents in Canada: PIPEDA consent given ☒ **YES** ☐ **NO**	**EH&S Office Use ONLY** EH&S Incident Reference Number:
PIPEDA is the Canadian "Personal Information Protection and Electronic Documents Act."	

***Date Of Incident** (mm / dd / yy):

Product Description

***Model No. or Product Name**:

Product Serial Number:	**Serial Number(s) of Accessory (ies):**
Installation Date:	**Total Copy Meter**:

Date of last service maintenance:

List damaged and affected part(s) of the machine by description and part number:

*Description	Part Number

***Location of product and affected part(s):**

Customer Identification

***Customer Name:**	***Name of Customer Contact Person**:	
***Address:**	**E-mail:**	***Telephone**:
		Fax:

Customer Service Engineer Identification

***Name** (required for Xerox serviced equipment):	**Employee**:	**E-mail**:
Location:	***Phone** (required for Xerox serviced equipment):	

Individual Providing Notification

***Name**:	***Title**:	***Telephone Number**:
***Organization**:		**E-Mail:**
Mailing Address:		***Date Report Submitted**:

***** Required information is preceeded by asterisk, **title shown in red**, turquoise wash background

Details of Incident

***Description Of Incident:** **(Check all that apply)**

☐ Smoke

Describe quantity and duration of smoke:

☐ Fire with open flames seen

☐ Electric shock to operator or service representative

☐ Physical injury/illness to operator or service representative

Describe:

☐ Other, **Describe**:

MANDATORY DESCRIPTION (above): Provide a detailed description of all valid factors that may have contributed to the incident. Hardware involved in the incident should be preserved and retained for further investigation should investigation be deemed necessary by EH&S.

LIST INCIDENT DESCRIPTIONS AND SUPPORT DIAGRAMS/DATA INCLUDED OR ATTACHED:

***Any damage to customer property?** No ☐ Yes ☐ Describe:

***Did external emergency response provider(s) such as fire department, ambulance, etc. respond?**

No ☐ Yes ☐ Identify: (i.e., source, names of individuals)

Apparent cause of incident (identify part that is suspect to be responsible for the incident)

***Preliminary actions taken to mitigate incident:**

Instructions: E-mail or fax both pages of this completed form to EH&S:

- For incidents in **Xerox Europe** and **Developing Markets East**
  (Middle East, Africa, India, China, and Hong Kong)
  Submit to Elaine Grange
  e-mail: ehs-europe@xerox.com or **fax**: +44 (0) 1707 35 3914 [Intelnet 8*668 3914]
- For incidents in **North America** and **Developing Markets West**
  (Brazil, Mexico, Latin America North and Latin America South,
  Submit form to Doris Bush
  e-mail: usa.xerox.ehs@xerox.com or fax 888-845-0908 [1-585-422-7918 / Intelnet 8*222-7734]

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DO YOU FIND THE FORMAT OF THE MANUAL EASY TO USE?						
WHAT IS YOUR OVERALL SATISFACTION LEVEL WITH THE MANUAL						

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